# AMERICAN GAS JOURNAL

91st YEAR | MAY, 1949 | VOL. 170, NO. 5



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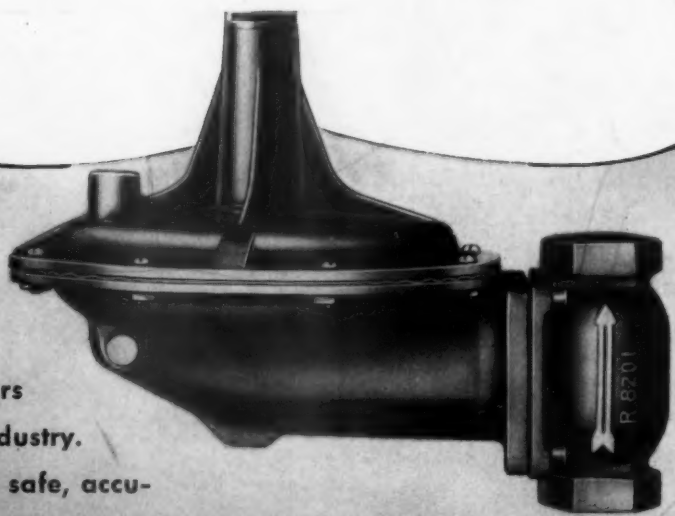


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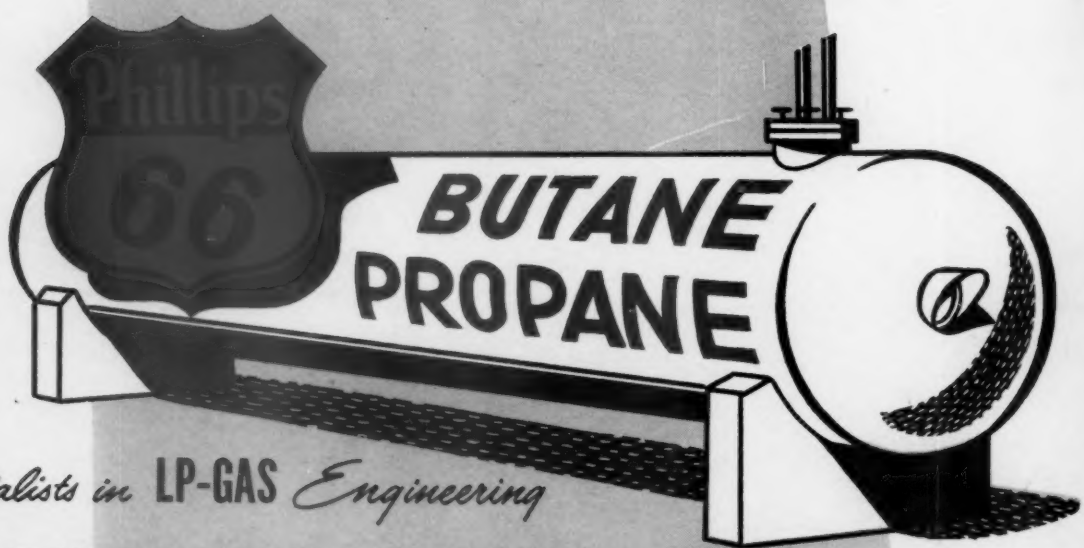
# OUR EXPERIENCED LP-GAS ENGINEERS WILL MAKE SPECIFIC RECOMMENDATIONS TO ASSURE CONTINUOUS PLANT OPERATION DURING FUEL EMERGENCIES AND PEAK LOAD PERIODS

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**FOR STAND-BY GAS OR CONTINUOUS OPERATION**

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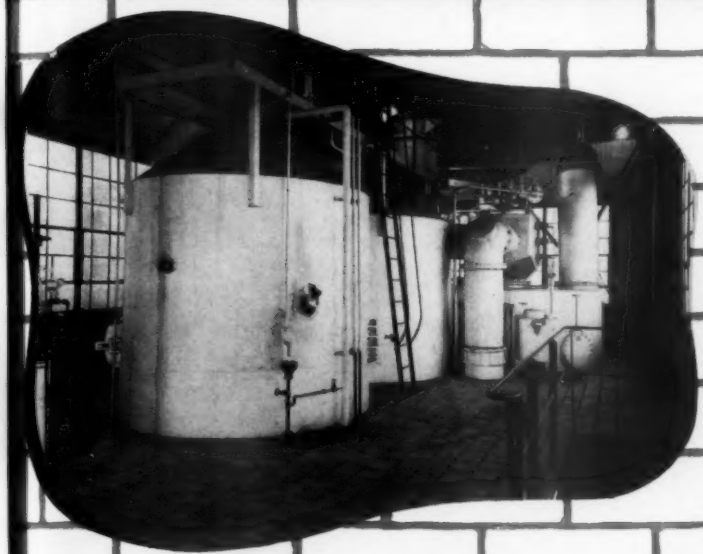
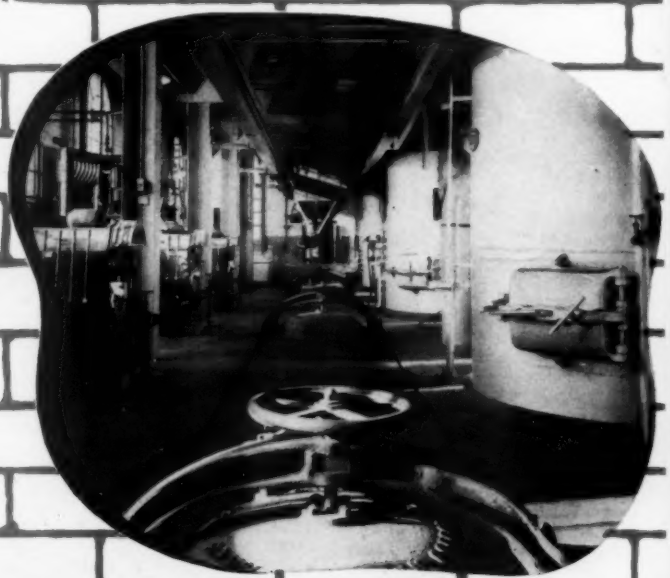
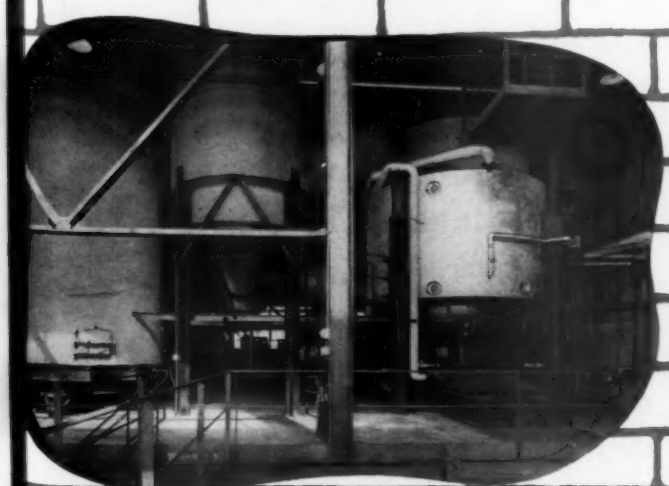
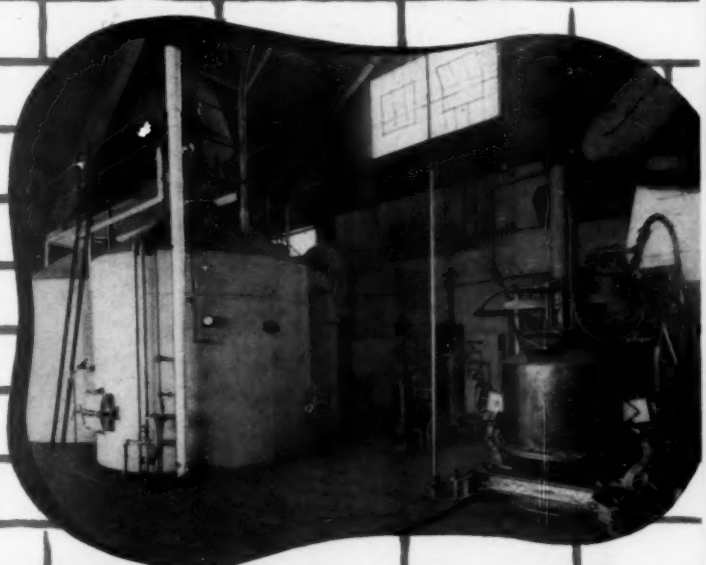
# YOU CAN SEE THE DIFFERENCE WHEN YOU LOOK INSIDE THE BUILDING





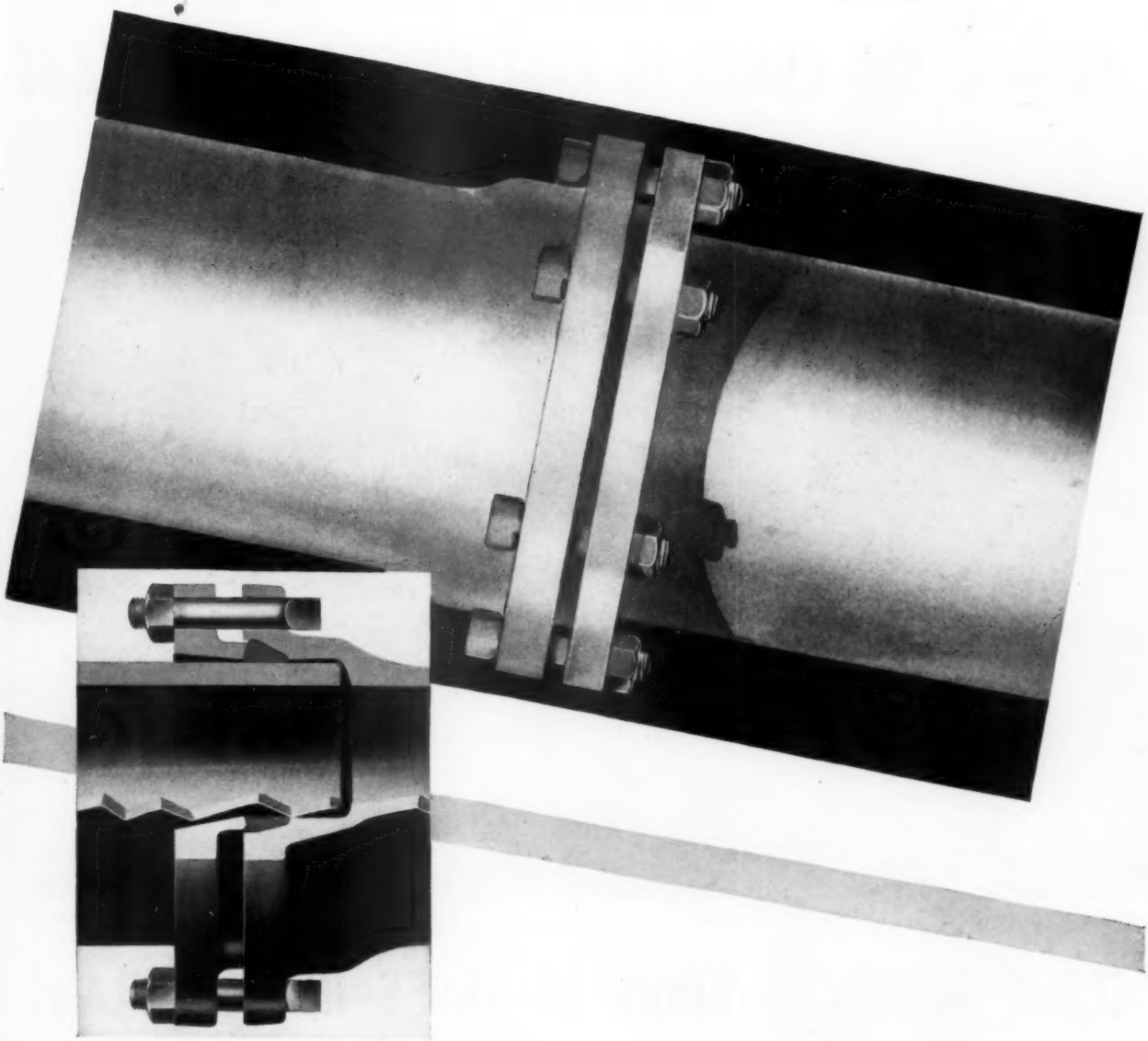




**SEMET-SOLVAY** ENGINEERING DIVISION
40 RECTOR ST., NEW YORK 6, N.Y.

ALLIED CHEMICAL & DYE CORPORATION

Nearly a century before mechanical joint cast iron pipe was developed, this 10-inch cast iron bell-and-spigot pipe was laid by the first gas company to be granted a franchise in this country—The Gas Light Company of Baltimore, Maryland. The present company serving that city with a modern distribution system is the Consolidated Gas, Electric Light and Power Company of Baltimore, a direct descendant of the pioneer company. When this veteran 10-inch main was uncovered for inspection on its 100th Anniversary, it was in excellent condition. It is America's oldest gas main, now in its 115th year of service.



Long life and bottle-tight joints—plus time-saving and other economies in laying—plus interchangeable accessories and fittings—are the reasons why important gas utilities are standardizing on standardized mechanical joint cast iron pipe. Cast Iron Pipe Research Association, T. F. Wolfe, Engineer, Peoples Gas Bldg., Chicago 3.

**STANDARDIZE ON**

**CAST IRON**

**STANDARDIZED MECHANICAL JOINT**

**PIPE**

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*West Conshohocken, Pa. Plant Philadelphia Electric Company*

# SEVEN DIFFERENT KINDS OF GASES IN THIS PLANT

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*PURCHASED COKE OVEN GAS • BLUE WATER GAS • REFORMED AND ENRICHED REFINERY OIL GAS*

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*WITH A BACKGROUND OF OVER SIXTY YEARS' EXPERIENCE*

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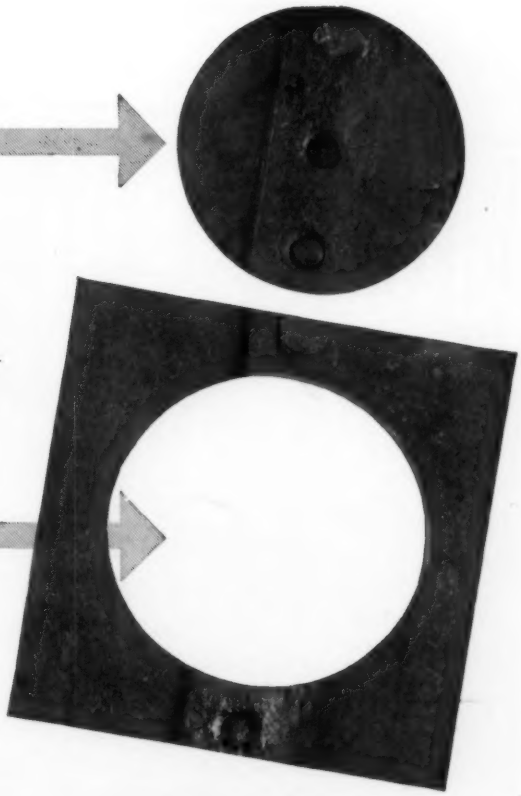

Here's a coupon with top value for the holder—*your gas holder.*

From it you'll get *positive* information about the internal condition of your wet-seal gas holder—information that will save you money in reduced maintenance and replacement costs. You'll be able to safeguard failures due to corrosion, misalignment or improper lubrication.

The coupon method of internal inspection is only one of the steps in the Stacey Brothers Gas Holder Inspection Service. Based on scientific survey, thorough examination, laboratory tests and engineering study, we'll give you a comprehensive report and specific recommendations to help you insure maximum life for your holder.

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*One of the Dresser Industries*
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Coupons are cut with a special disc-cutter like this. An Archimedean screw holds the cutter in position, clamps the rubber sealing base ring tight against the holder shell, and prevents the coupon from falling into the holder after it is cut.

This and many other features of Stacey Brothers Gas Holder Inspection Service are described in a 16-page illustrated catalog, number 1-44. Write us for your copy.

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GASMACO Solved the Problem!

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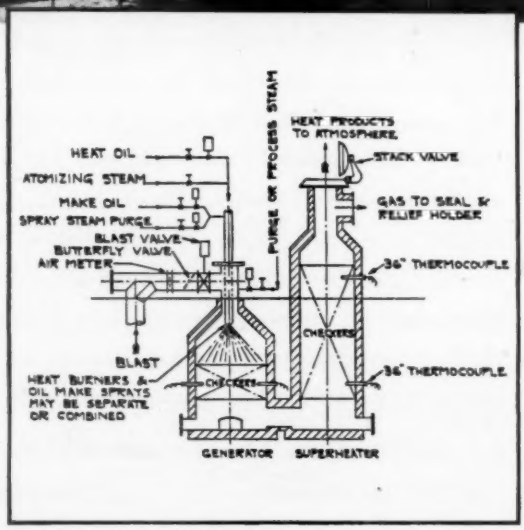
This may be the answer to your peak load and stand-by problem. *And you do have a problem!*

Write to us for the complete story of this installation.




*HI-BTU Oil Gas Process*
*Patent pending*

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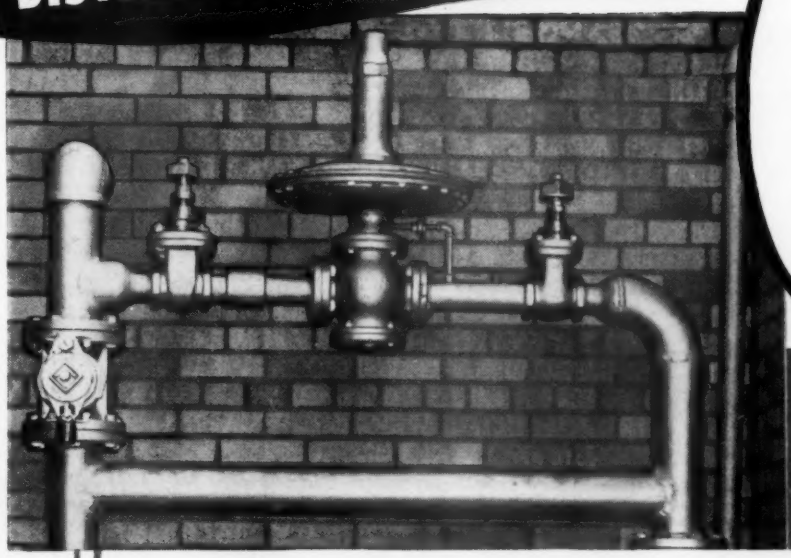

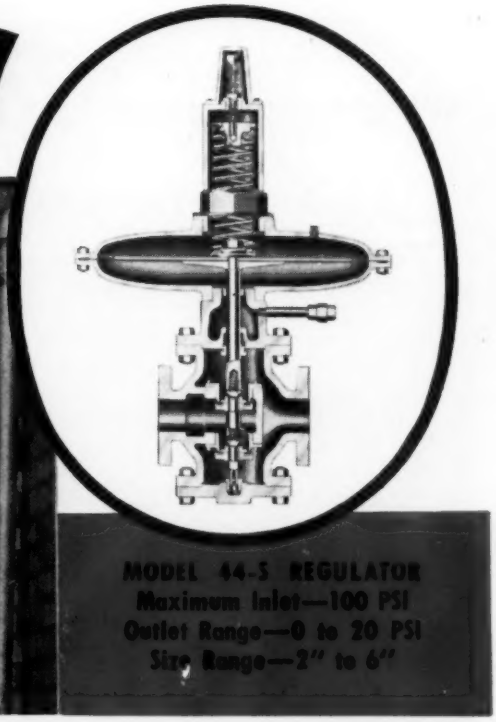

MODEL 44-S REGULATOR
Maximum Inlet—100 PSI
Outlet Range—0 to 20 PSI
Size Range—2" to 6"

## *Specify* CHAPLIN-FULTON MODEL 44-S REDUCING REGULATOR

Chaplin-Fulton Model 44-S Reducing Regulators are the perfect choice for low pressure installations, either in distribution systems, large capacity commercial applications, or for gas pressure control in industrial furnaces and process ovens.

**Accurate Regulation**—The correct combination of accurately calibrated springs and properly sized diaphragms guarantees efficient performance.

**Durable Construction**—Flanged design with extra heavy castings of high tensile iron built to last. Wearing parts easily replaced.

**Removable Orifices**—Flanged design permits quick replacement in field with socket wrench. Main body never needs replacement. Reduced size orifices interchangeable.

*LONG ON OPERATION~ SHORT ON MAINTENANCE*

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With your pressure and flow specifications, Chaplin-Fulton can supply the regulator you need.

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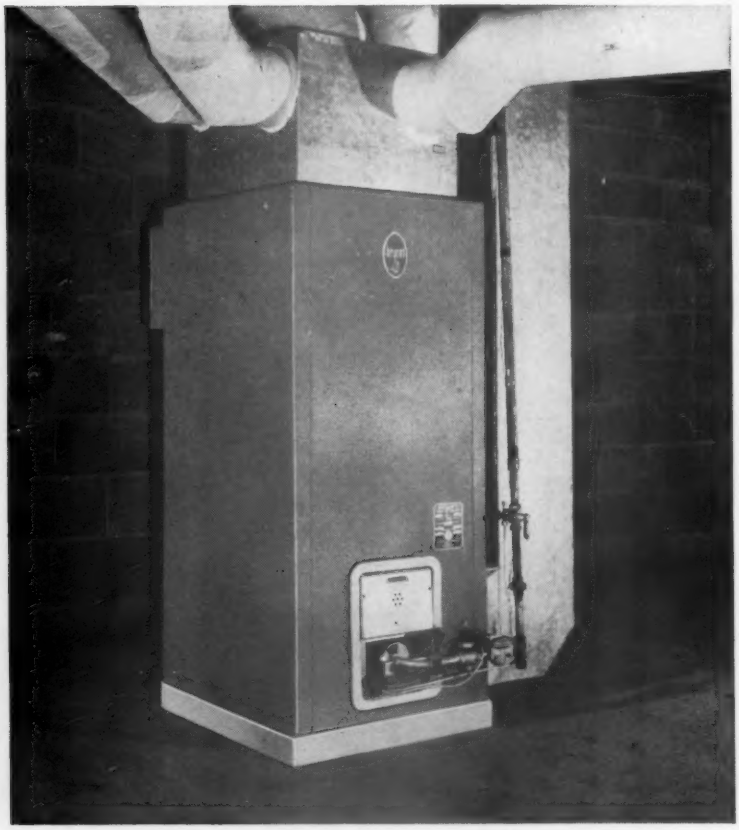
# "We learned about *Trouble-free Heating*

## from the BRYANT Gravity Warm-Air Furnace"



*Penn-Pitt Construction Co.'s *Green Valley* houses are heated by Bryant Model GS-57 Gas-Fired Gravity Furnaces. Heating Contractor: George Kurtz, Pittsburgh, Penna.

**say J. J. and C. V. Cravotta, Penn-Pitt Construction Co., Pittsburgh, Pa.**

*"300 installed, 300 operating without a hitch. That's our experience with the Bryant Model GS-57 Gravity Furnace in our Green Valley* Project. We have also used them with equal success in other projects and intend to use them in still more. We like our house buyers to be completely satisfied."*

The Bryant Model GS-57 is an efficient, completely automatic unit designed specifically for gravity warm-air systems in small and medium-sized homes. It is made in four sizes, inputs 70,000 to 140,000 Btu per hour, with models for natural, manufactured, mixed and LP-Gases.

The Model GS-57 features an all-welded heat exchanger of heavy gauge steel in which all flue gas travel is upward. There are no condensation pockets. Burner baffle, in combination with burner, contributes to unusually uniform temperatures of heat exchanger and elimination of hot spots.

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Let the pup be furnace man ... and water boy, too!

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**BRYANT HEATER DIVISION**

*Affiliated Gas Equipment, Inc.*

Cleveland, Ohio • Tyler, Texas

VOLUME 170
Number 5

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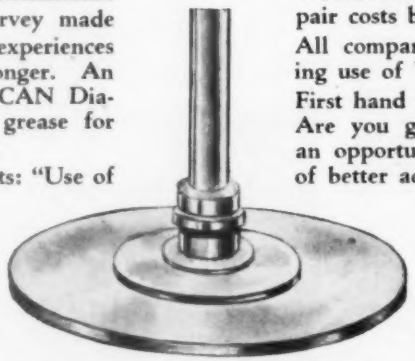
## *"Vulcan Diaphragm Meters Test Better, Particularly When Meters are Exposed to the Weather"*

The above is one of many enthusiastic answers to questions in a survey made among gas companies whose experiences date back ten years and longer. An important advantage of VULCAN Diaphragms is that there is no grease for heat to melt or cold to stiffen.

This same company also reports: "Use of VULCAN Diaphragms tends to reduce repair costs by eliminating diaphragm oil."

All companies contacted report expanding use of VULCAN Diaphragms.

First hand experience is the best teacher. Are you giving VULCAN Diaphragms an opportunity to prove the advantages of better accuracy and lower cost?



# Vulcan

**PROOFING COMPANY**

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MAY
1949

AMERICAN
GAS JOURNAL

VOLUME 170
NO. 5

# How Natural Gas Affects Industrial Economics

WIDER USE of natural gas as a major energy fuel should be a major objective of American industry, in the opinion of Dr. Richard Gonzalez, chief economist of the Humble Oil and Refining Co., Houston, Texas.

Dr. Gonzalez predicated his recommendation on three major factors:

1. Large reserve supplies.

2. Lower cost than competing fuels in terms of thermal units.

3. Economy and efficiency of transportation, and adaptability of transportation methods to permit speed.

He set forth his views at a scientific symposium at Houston on "Gulf Coast Hydrocarbon Resources" as part of the program dedicating the new $26,000,000 Monsanto Chemical Co., styrene and ethylene plant at Texas City. The plant, a heavy consumer of natural gas, replaces the plant destroyed in 1947.

Dr. Gonzales said: "A better price for gas will be the strongest incentive to the fullest conservation that can be attained economically. An intelligent understanding and handling of the problems and opportunities that exist should enable this area to capitalize on the bright economic outlook ahead for these resources."

"Ultimately," Dr. Gonzalez warned, "coal and shale reserves, as measured in heat energy, will exceed oil and gas from 10 to 20 times, but that day is decades distant and when such conditions prevail, energy fuel prices will be much higher."

Gas, he said, is selling too cheaply today, largely because "available supplies exceed distribution facilities, but this is a factor being taken care of in new pipeline construction and gathering and distribution connections."

### Natural Gas for Peak Demands

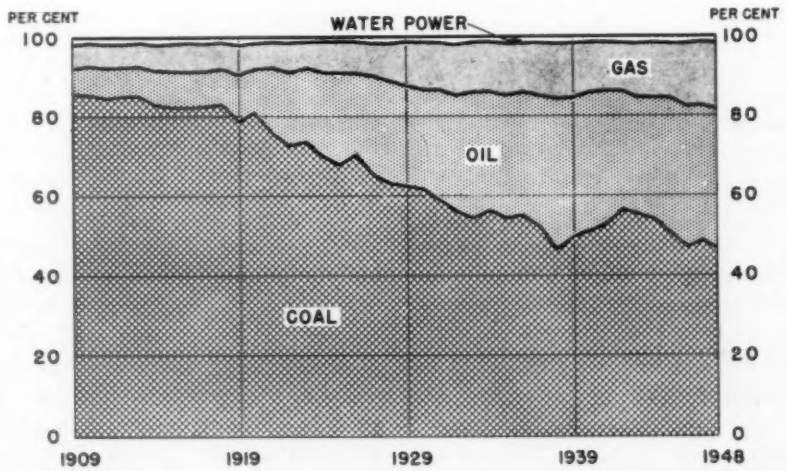
Dr. Paul Weaver, chief geophysicist of the Gulf Oil Corp., Houston, who also took part in the forum, added that "gas is most readily adaptable to any sudden demand for space heating and much more so than any other fuel."

"Any rapid demand of an emergency nature, or development of heavy space heating users in community growths, could be met by the natural gas industry in a matter of hours as compared with solid fuels," Dr. Weaver said.

"Gas supplies and transportation facilities are vastly superior to other types of emergency supplies of fuels. The loss of energy in the transmission of natural gas is less than that of any other fuel, including the most efficient electric system we now know."

Dr. Weaver estimated gas reserves in Texas alone had been increased by 8 trillion cubic feet in 1948 discoveries and development, as contrasted to

OIL AND GAS NOW SUPPLY AS MUCH ENERGY AS COAL




Coal now supplies only about 47 per cent of the energy produced in the U. S., compared with its share of around 85 per cent in the period 1900-1920. Oil and gas have improved their per cent participation in supplying energy from about 11 to 49.

the 1948 consumption rate of 2.7 trillions, and put total Texas gas reserves recoverable by present methods at better than 15 trillion cubic feet.

"Solar radiation or nuclear fission may be the ultimate answer to our heavy fuel energy demands at some distant date," Dr. Gonzalez said, "but for many uses and particularly in space heating, gas, oil and coal will retain their advantages, and the hydrocarbons will be widely used.

"Present indications suggest that the demand for mineral fuels will increase about two per cent annually over the next 20 years, barring any major revolution in the development of new sources of power at costs competitive with oil, gas and coal. Energy consumption in the United States today is approximately 250 million British thermal units a year per capita, approximately 25 times the average use per person in other countries.

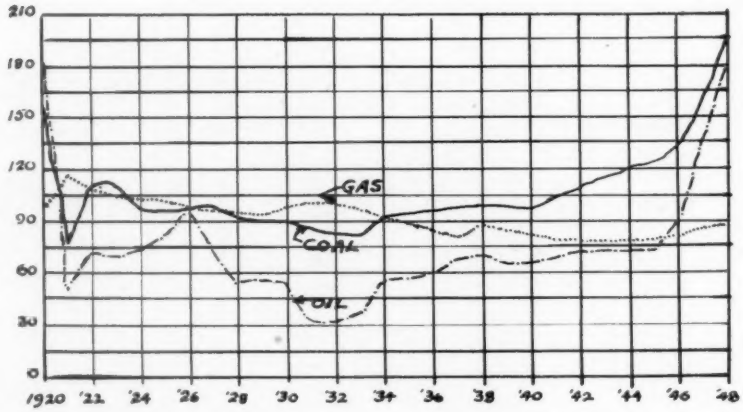
### Gas Availability

"Gas and liquid fuels are more convenient than coal for many uses," Dr. Gonzalez said, adding that coal prices had increased far more rapidly than either oil or gas in recent years, with liquid and vaporous energy fuels "far below the general wholesale price index" in the field.

"Domestic gas resources will at least be able to keep pace for the next decade and, in view of the large proved reserves of natural gas in relation to current consumption, it seems reasonably certain that marketed production of gas can continue to increase at rates of five to ten per cent annually, as it has in recent years, if facilities are built to deliver the larger quantities to market," he said.

"Gas prices may be expected to advance because they have been at subnormal levels compared with other fuels. Oil resources of the Gulf Coast area have already been developed to a high level, but natural gas is in the early stages of important expansion which will lead to larger markets and much better prices. The development of gas operations is expected to be rather rapid and of great economic significance.

"The Gulf Coast and the Panhandle-Hugoton are the two major areas in which gas reserves are concentrated. The latter area serves primarily the central portion of the United States and already has a large part of its supplies committed to that market. The Gulf Coast, being further removed from the large population centers, lagged somewhat in finding markets for its gas until recent years.




Index of Wholesale Fuel Prices (National Average) with 1926 equalling 100. (Source: U. S. Bureau of Labor Statistics.)

"During and since World War II there has been a rapid industrial development along the Gulf Coast, based in large part on the availability of hydrocarbons and several new lines have been built or authorized to move natural gas northeast. An extraordinary demand has developed for gas because it is economically attractive to construct gas pipelines to the East Coast, the Midwest, and the Pacific Coast. This demand adds value to the gas resources of the Southwest.

"Economic importance of gas to the Gulf Coast has been held back only by lack of markets and low prices, for proved gas reserves have a heat value exceeding that of the known oil reserves by a substantial margin. The average price of gas at wells in Texas in 1948 was less than five cents per thousand cubic feet, which would be equivalent to only 30 cents a barrel for oil and $1.25 a ton for coal, based on a value of 1,000,000 British thermal units for a thousand feet of gas, 6,000,000 BTU per barrel of oil, and 25,000,000 BTU for a ton of coal.

"In 1948, fuel oil at the Texas Gulf coast was $2.45 a barrel and the price of coal at Pennsylvania mines was about $5 a ton, so that these fuels commanded from four to eight times as much as gas for the same heat value at the point of production. Although gas costs more than oil to move to market, gas in Texas has been selling at a low price relative to coal and oil.

"In the West Texas and Panhandle fields, where much of the gas is sour and is used for carbon black, it is only about 3 cents a thousand cubic feet, whereas in East Central Texas and on the Coast, the price averages about six cents or more. Texas Eastern Gas Pipeline reported that it paid an average of 6.5 cents per thousand, measured at 15.025 pounds pressure for East Texas and Gulf Coast gas last year.

### Field Prices

"It is not unreasonable to expect that within the next few years, natural gas on the Gulf Coast will command a price of 15c to 20c a thousand cubic feet at the wells. Incidentally, such a price would be about what large industrial firms in the Houston area paid for gas in 1926, when the price of fuel oil averaged $1.45 a barrel at the Gulf Coast.

"Such field prices would also permit large lines to move gas to the East Coast at reasonable delivered prices considering its advantages over coal and oil. At a liberal figure of 1.4c per hundred miles to cover all transportation costs, taxes and profits on a thousand cubic feet of gas, a 1,500-mile line could pay about 20c for gas and deliver at the end of the line for 40c a thousand cubic feet, equivalent to consumer delivered prices of $2.40 for fuel oil and $10 a ton for coal.

"Distribution costs would mean somewhat higher prices to consumers, but industrial users probably would be able to buy gas below the average delivered price. In any case, there should be a large market for gas for home heating and special industrial uses, even at premium prices relative to coal, because of the convenience and assurance of supplies."

# Domestic Gas Research Reviewed At Cleveland Conference

OUTSTANDING advances in domestic gas appliance research and utilization were brought into focus as these phases of PAR Plan activities took the spotlight at Cleveland on March 31 and April 1. More than 300 members of the American Gas Association and leading research institutions participated in the sessions of the Association's Domestic Research and Utilization Conference, the first to be held in three years.

What has been accomplished up to today and the course ahead tomorrow was the theme of the sessions which were scheduled again because of popular demand. Critically examining research and utilization gains in, this, the fifth accelerated year of PAR, delegates discovered for themselves why the united A.G.A. advances has caused spokesmen of competitive services to raise "envious" browns.

Held jointly under auspices of the Committee on Domestic Gas Research and the Utilization Bureau of the Association, the conference combined the consideration of strictly technical matters with an overall view of industry needs and a thorough review of the research program.

R. J. Rutherford, chairman of the Committee on Domestic Gas Research, presided over the general and luncheon sessions. H. Vinton Potter, A.G.A. coordinator of promotion, spoke at the initial luncheon on "The Real Needs of Gas Appliances to Meet Customer Preferences." This provocative talk was followed by a searching analysis of current research projects: "What the A.G.A. Research Program Means to You," prepared by J. French Robinson, past president of A.G.A. and president, The East Ohio Gas Company, and effectively delivered by his sales manager, Karl Emmerling. On the second day Frank J. Nugent, president, Gas Appliance Manufacturers Association, talked about the "Dynamic Forces Affecting Gas Appliance Design and Manufacture."

On the first day the delegates were briefed on the status of all research projects and given an opportunity to question the experts concerning them. Laboratories staff members outlined the work done and the future needs in the three fields of ignition by automatic pilots, burner design and combustion, and venting, aeration and humidity control. C. George Segeler, A.G.A. engineer of utilization, explained how public rules and ordinances affect the use of gas.

Dr. F. E. Vandaveer, The East Ohio Gas Company, presided at afternoon sessions when up-to-date information on appliances, installations and performance was discussed. Discussion leaders were F. H. Schneider, Florence Stove Company, on cooking research; Robert C. Bryce, Philadelphia Electric Company, on water heating; William M. Myler, Jr., Surface Combustion Corp., on space heating; Edward J. Nelson, Rochester Gas and Electric Corp., on competitive services; and Thomas J. Perry, The Brooklyn Union Gas Company, on installation studies. Edwin

R. J. Rutherford

L. Hall, director of A.G.A. Testing Laboratories, reviewed postwar revisions in A.G.A. Approval Requirements and what they mean to utility and manufacturer.

Clinics for more detailed discussion of research, utilization practices and servicing of appliances were held the second day. Dr. William R. Hainsworth, vice-president in charge of research and development, Servel, Inc., acted as moderator for morning sessions, and John R. Beccia, The Connecticut Light and Power Company, for afternoon sessions. Discussion leaders were C. C. Winterstein, The Philadelphia Gas Works Company, on automatic pilots and ignition; Howard A. Brown, Rochester Gas and Electric Corp., on kitchen ventilation and home humidity control; E.

Dr. F. E. Vandaveer

C. Adams, Adams Brothers Manufacturing Company, on venting problems and practices; E. W. Carson, Philadelphia Electric Company, on water heater design; Dr. Vandaveer, on confined space installation of furnaces and water heaters; Mr. Beccia, on appliance installation costs, competitive services and experiences with magnesium rod protection; and Thomas J. Perry, The Brooklyn Union Gas Company, on lighting and ignition problems and training of service employees.

An interesting highlight was a session on how to get the most use from research bulletins. George B. Johnson, manager, customer service, Minneapolis Gas Company, presided. Special pointers for manufacturers were presented by William R. Teller, Bryant Heater Division, Affiliated Gas Equipment Inc.; and those for utility men by Herbert Luoma, Alabama Gas Corporation. Both presented ways of using research bulletins as outlined by engineers and executives in the industry.

Five new research publications were released at the conference. Included were reports on fundamentals of heat transfer in central gas space heating furnaces (Report 1108) and research in pilot design, construction and performance (Report 1123A) both conducted by the A.G.A. Laboratories. Two publications, Purdue University engineering bulletins (sponsored by A.G.A.) were "Research in Venting Direct Gas Heaters When No Chimney Connections Are Available," (Report No. 2 in Research Series 105) and "Research in Home Humidity Control" (Research Series No. 106). The fifth new publication was "Galvanic Corrosion of Dissimilar Metals As Applied to Gas Hot Water Storage Heaters—Part II," conducted for the Committee on Domestic Gas Research by Case Institute of Technology.

# Work Starts in May on World's Longest Pipe Line

**By Special Correspondent**

AMERICA'S largest and longest natural gas pipeline will be started in May, making available to Eastern industry reserve of an estimated 90 trillion cubic feet of gas from Texas and Louisiana.

The line, to be built by Fish Constructors, Inc., an affiliate of Fish Engineering, Inc., will cover 1840 miles from near McAllen, Texas, about 15 miles north of the Rio Grade, to the east bank of the Hudson River at 132nd Street, New York.

In addition to the main trunkline crossing 11 states, some 400 miles of gathering and feeder lines will be built to supply the 30-inch main trunk with an initial capacity of 340,000,000 cubic feet daily, with final completion scheduled for January, 1951.

The line is being built for the Transcontinental Gas Pipe Line Co., of Houston, unsuccessful bidder for the Big Inch and Little Big Inch Lines. However, several months before bidding on the Inch lines, Transcontinental was formed and filed an application with the Federal Power Commission for the line now to be built.

Claude A. Williams, president of Transcontinental and former chairman of the Texas Unemployment Compensation Commission, emphasized that the new line is primarily a Texas operation, with approximately half the common stock held by Texas interests. Of the estimated total cost of $200,000,000, Mr. Williams said, about $143,000,000 had been financed by the sale of long-term mortgage bonds to a group of insurance companies.

Approximately 600 miles of major trunk line will be built this year, with contracts to be let in the immediate future and work to start about May 15, "subject of weather conditions," according to Ray Fish, president of Fish Constructors.

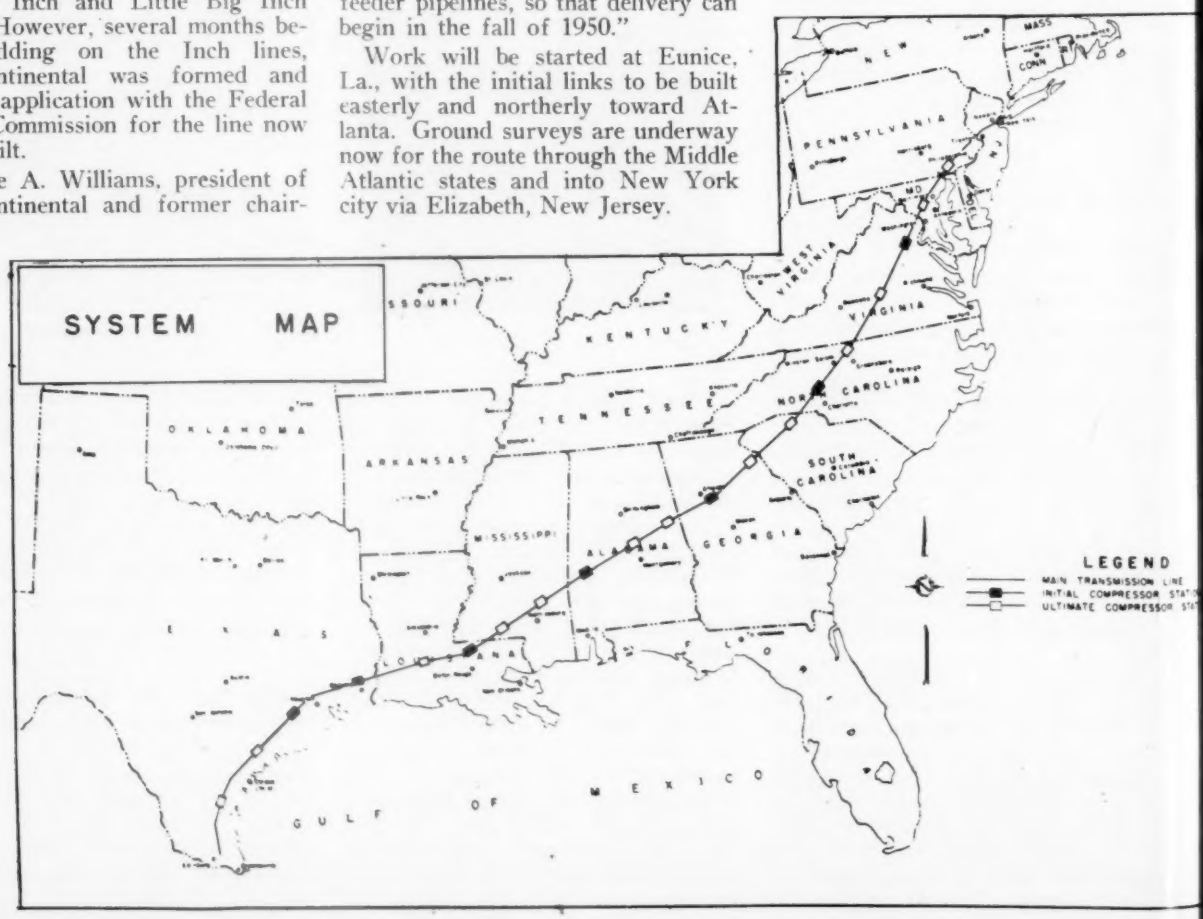
"Six pipeline spreads will be used this year and seven of the 20 main compressor stations will be put in," Mr. Fish continued. "We will use 15 spreads next year and put in the remaining 13 stations, along with approximately 2,000 miles of main and feeder pipelines, so that delivery can begin in the fall of 1950."

Work will be started at Eunice, La., with the initial links to be built easterly and northerly toward Atlanta. Ground surveys are underway now for the route through the Middle Atlantic states and into New York city via Elizabeth, New Jersey.

Two major river crossings will be bridged, the Atchafalaya in Louisiana, to total approximately 3,000, feet, and the Coosa, in Alabama. Other rivers en route, including the Mississippi, will be crossed with submerged lines.

As the line stands on paper, capacity can be expanded from the immediate delivery potential of 340,000,000 feet daily to 500,000,000 feet, Mr. Fish said. Approximately four trillion cubic feet of gas are under contract, "with adequate reserves beyond that available as we need it," Mr. Fish continued.

Major N. R. McKay, formerly with the Southern Natural Gas Co., of Atlanta, will be chief engineer for the project for Fish Constructors. By using 30-inch pipe instead of 24 or 26, Major McKay said, "we can deliver gas in New York City at 31 cents, as contrasted to a pre-war Atlanta gate price of 40, which we



wouldn't be able to do if we had to use the smaller pipe."

Construction of the line will start just about a year to the day from permission to build the line, granted by the Federal Power Commission May 29, 1948. The application for the line was filed in 1946, but not pressed until after the company's unsuccessful bid for the Big and Little Inch lines. Transcontinental was second high in the bidding.

Gas to be delivered to the Nek York gate will come from fields in Texas and Louisiana, including "a substantial part from flare gas in Texas oil fields," Mr. Fish said. Major fields to be tapped in the initial delivery program include:

Conoco-Driscoll, La Gloria, West Gueydan, Starr County, Odom, Lube, Petronilla, Lacey, Quinto Creek, Bee and Live Oak counties, North Markum, North Bay City and Egan, in Texas, and West Bernardparish, Fresh Water Bayou and surrounding areas in Louisiana.

Contracts for the gas have been signed by Consolidated Edison Co. of New York, The Brooklyn Union Gas Co., Public Service Electric & Gas Co., Philadelphia Electric Co., Long Island Lighting Co., Brooklyn Borough Gas Co., New York and Richmond Gas Co., Elizabethtown Gas Co., and Kings County Lighting Co.

The main line calls for 71 miles of 20" pipe, 558 miles of 26" pipe and the balance of 1,211 miles of 30" pipe. Steel is being provided by the Kaiser Co., at Fontana, Calif., with 500,000 tons on order, and pipe is being fabricated by the Consolidated Western Steel Co., at Los Angeles.

From the point of origin near McAllen, Texas, the line will run near Alice, Victoria, Houston and Beaumont, Texas; Lake Charles, La., and across the Mississippi about 50 miles north of Baton Rouge, then skirt Montgomery, Ala., Atlanta and Athens, Ga., Spartanburg, S. C., Winston-Salem, N. C., Lynchburg, Va., west of Washington, D. C., north of Baltimore, Philadelphia and Linden, then through Elizabeth and Newark into the terminus in New York City.

Transcontinental was "pioneered" by Mr. Fish and associates before World War II as the Reserve Gas Co. Their idea then was for a long line from Texas to the New York market, but war scarcities prevented operations.

Subsequently, Transcontinental was formed to take over on the Big and Little Big Inch bidding, with the separate application for the line to be built now. Fish Engineering did all the basic engineering work in preparing data for the Federal Power Commission and for the financial interests involved. The contract given to the Fish Constructors Co., for completion of the line is believed to be the largest single contract ever awarded in the natural gas industry.

Mr. Williams, a former district attorney at Longview, Texas, and Mr. Fish, who was one of the chief figures in the construction of the Inch lines, agree on one thing in concluding a resume of their plans:

"We could sell three times as much gas as we are going to sell, if we could get it delivered in the New York area."

The following paragraphs are quoted from the annual report for 1948 of Consolidated Edison Company of New York:

"The company concluded an agreement with the Transcontinental Gas Pipe Line Company, Inc. to bring natural gas to this area. Consolidated Edison contracted for a supply of a maximum of 100,000,000 cubic feet of natural gas a day which is expected to be available in 1951.

"The natural gas will be used by the company in its gas manufacturing operations and will supplant most of the oil now being used in those operations. It will also effect a substantial reduction in the quantity of coke required. A small portion may be burned under boilers in electric generating stations. Consumers would receive gas having approximately the same heat content as at present so that no changes in their equipment would be necessary.

"Based on current oil prices, savings in fuel costs of at least $6 million a year are expected to be realized by the company as a result of the use of natural gas. In addition, increased customers' demands can be met with little increase in manufacturing plant investment."

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# Natural Gas Pipe Line and Statistical Report is Issued by G. A. M. A.

During the three and one-half year period—July 1, 1945 to January 1, 1949—a total of 6,238 miles of natural gas pipe line was completed and placed in operation in the United States, according to a report of the Gas Appliance Manufacturers Association. The study, which is entitled, "Natural Gas Construction Data," is based on information made available by the Federal Power Commission.

The report indicates that with additional completed construction this year, increased supplies of gas will be available which will "accelerate the removal of restrictions on the use of gas for house heating purposes."

The Federal Power Commission authorized during this period major natural gas pipe line projects totaling 14,883 miles, leaving about 8600 miles of pipe line not yet completed.

The GAMA report shows that the total mileage authorized by the FPC calls for the use of 3,386,200 miles of steel pipe, with total construction expenditures amounting to approximately $895,300,000.

The report also reveals that on January 1, 1949, major pipe line projects pending authorization of the FPC totaled 14,599 miles, involving 3,672,100 tons of steel pipe, and construction costs of approximately $1,167,000,000.

The GAMA report summarizes the situation as follows: The total authorizations of major pipe line projects from July 1, 1945 to January 1, 1949, and pending authorizations total 29,442 miles. Steel pipe required is 7,058,000 tons, with construction costs estimated at $2,062,000,000.

It is pointed out in the report that the Big and the Little Big Inch lines are not included in the figures.

"Behind this tremendous expansion program of the natural gas industry, which will increase natural gas facilities approximately 50 per cent, are the ever-increasing proved natural gas reserves," the report says. "Natural gas reserves have increased from 16 trillion cubic feet in 1919, to 176 trillion, 800 billion on January 1, 1949. New, proved natural gas reserves are increasing year by year in excess of use."

Comprehensive tables in the report give company name, FPC docket number, miles and sizes of pipe lines, compressor capacity, costs, communities served, etc.

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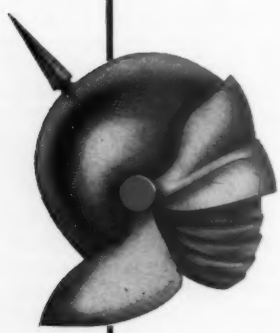

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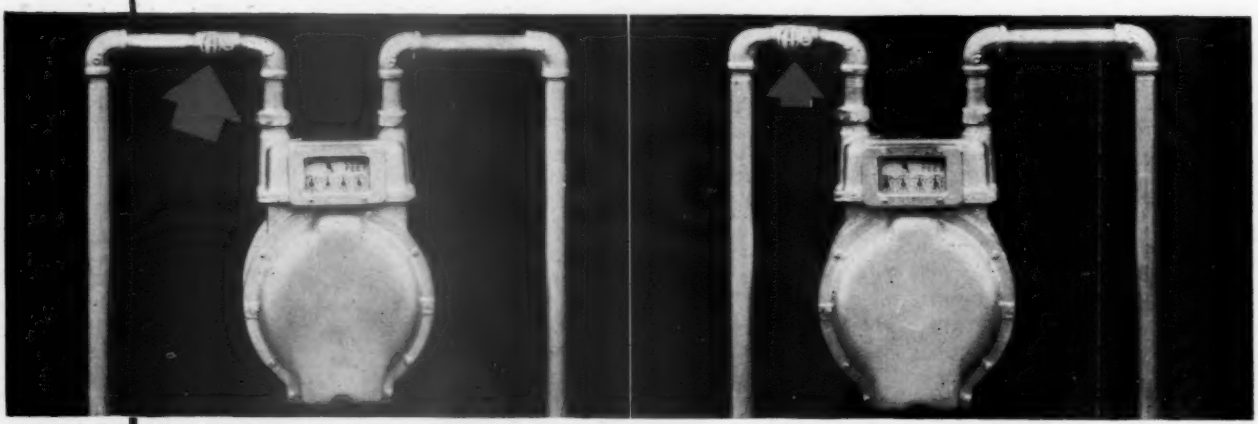
The installation of one of these fittings in the service line breaks the flow of all electrical current, giving a positive, practical and easy method of eliminating the corrosion caused by these currents.

The photographs below show two commonly used hookups for meter and service lines. Note the simplicity of both hookups.



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# Distribution, Motor Vehicles and Corrosion Conference of A. G. A.

## Reduction in Service Costs Outstanding Theme of the Meeting

THIS 1949 Distribution Conference of American Gas Association, held at Netherland Plaza Hotel, April 4-6 achieved a high-mark registered attendance of 730 and paid homage to Jacob D. von Maur of Toronto for his fifty years of service to the gas industry, dating back to his employment with United Gas Improvement Company of Philadelphia in 1898.

Mr. von Maur, now in consulting capacity with Consumers Gas Company of Toronto was presented with a substantial check and a silver platter—we might even say *trencher*, in view of his outstanding contributions and activities over many years in gas distribution work.

Following the presentation at the opening of the meeting, tributes to his accomplishments were expressed by Chairman H. B. Anderson of Philadelphia, C. S. Goldsmith of Brooklyn, N. Y., F. A. Lydecker of Newark and Edward J. Tucker of Toronto.

In responding, Mr. von Maur expressed his deep thanks and appreciation of the tributes conferred on him. He stated that since his graduation from Lehigh University as a Civil Engineer, he had "lived a life of interrogation" in his engineering work, believing such policy to be a sound source of knowledge on subjects pertaining to the gas industry.

The program of the Conference included three General Sessions and Luncheon Conferences each day on Corrosion, Construction and Maintenance, Distribution Design and Development, Meters and Metering, Motor Vehicles, and Work on Consumers Premises.

### General Sessions

The Monday session opened with greetings by the Chairman J. M. Pickford and W. C. Beckjord, president of Cincinnati Gas & Electric Co. Following the presentation to Mr. von Maur, F. Glen Shoemaker of General Motors Corporation spoke on Economy and Application of Diesel Engines.

Dr. Leo Wolman in an address on Industrial Relations said that the labor movement "shouldn't go farther," because it is strangling our competitive enterprise system.

The economist said the 15,000,000 members of the trade unions represented the biggest organization in the country. He said labor represented the "largest single item of cost" to management, and that the "payroll of most businesses is two-thirds of all expenses."

"This situation really means," he said, "that labor is limiting the area of competition, and reducing the authority of management."

"We must be careful to retain the Taft-Hartley Act in its present form," he said. "Nobody suffered under it to my knowledge."

He also warned that the current trend is toward socialism. If we continue, he warned the country may expect "more trouble, more strikes, less business and more unemployment."

The Tuesday session, under the chairmanship of J. M. Pickford, opened with an address by L. K. Richey, Vice Pres. of Michigan Consolidated Gas Co. on precautionary measures in all gas company operations. Eyes should be always kept open and men alert for all possible hazards and that safety supervisors should be possessed of imaginations. Diagrams on the screen illustrated many of his remarks.

**Russell H. Freeman,** gas distribution engineer of Public Service Co. of Colorado spoke on the pressure regulation problems involved in serving large heating loads connected to old distributing systems and related recent experiences in adapting a commercial controller to automatic station operation. "The over-all problem of supplying large additions of load is, however, primarily one of design and reinforcement of the distributing systems, assuming ample gas is made available

1:—Construction and Maintenance Subcommittee Luncheon Conference
L. to R.:—James A. Whelpley, Cincinnati, (Vice-Chairman); F. J. Hall, Detroit, (Chairman); J. M. Pickford, Hammond, Ind.; A. W. Johnston, Jr., Washington, D. C.

2:—Distribution Design and Development Luncheon Conference
L. to R.:—W. P. Dick, Columbus, Ohio; G. A. S. Cooper, Newark, N. J.; V. F. Bittner, Chicago, (Chairman); Calvin A. Brown, Rochester.

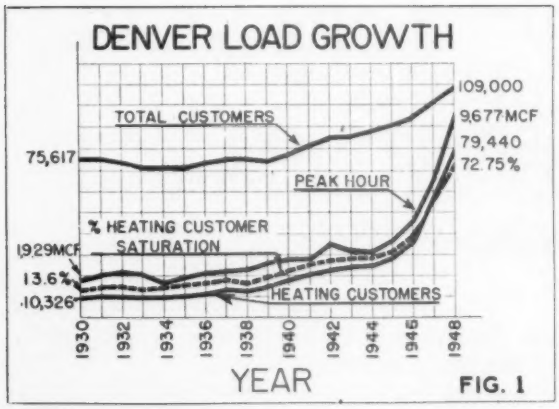


FIG. 1

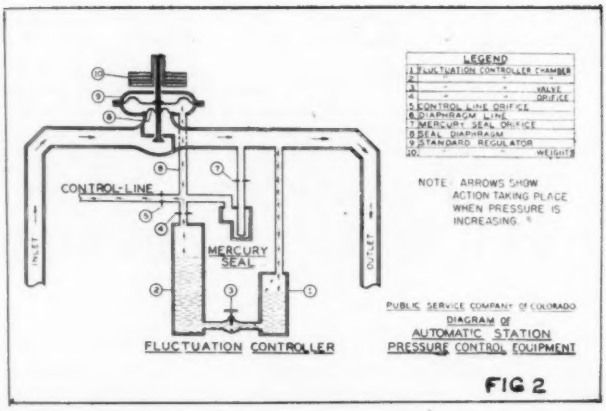


FIG 2

at the city gates." He offered a brief review of the types of systems used by the Public Service Company of Colorado and the methods of operations.

A chart showing load growth from 1930 to 1948 as influenced by heating customers is shown in Figure 1.

Figure 2 shows the "round-the-block" control with the installation of a fluctuation controller developed several years ago to control the rate of change in delivery pressure. "It is a diagram showing the hook-up using this device, with small arrows in the direction of flow during a period when station outlet pressure is rising. It consists essentially of two oil chambers (1) and (2), made of 6-inch or 8-inch pipe and containing oil which fluctuates in level with changes in pressure. An arrangement of limiting orifices (4) (5) (7) and piping connecting the oil chambers, control line, regulator and outlet main complete the set-up. Any change in outlet pressure causes the oil levels in the chambers to change, displacing gas in or out of the fluctuation controller orifice (4). This displaced gas increases or decreases the pressure under the regulator main diaphram, counteracting or dampening the tendency of the regulator valves to change position. The displaced gas bleeds slowly in or out of the control line orifice (5) allowing the regulator valves to assume the required position slowly, then remain free to respond to any other change in control line pressure.

"Operation on a 'round-the-block' control is much improved by use of this fluctuation controller. Higher peak pressures can be delivered from the station with less sag in control line pressure and with stable control over a wider range of loads and system lags.

"A device known as the Free-Vane Controller was investigated. It appeared to meet most of the basic requirements and subsequent trials in adapting it to automatic control of low pressure type district regulators, have been successful. Details as to the instrument's mechanism and principles of operation are available from the manufacturer."

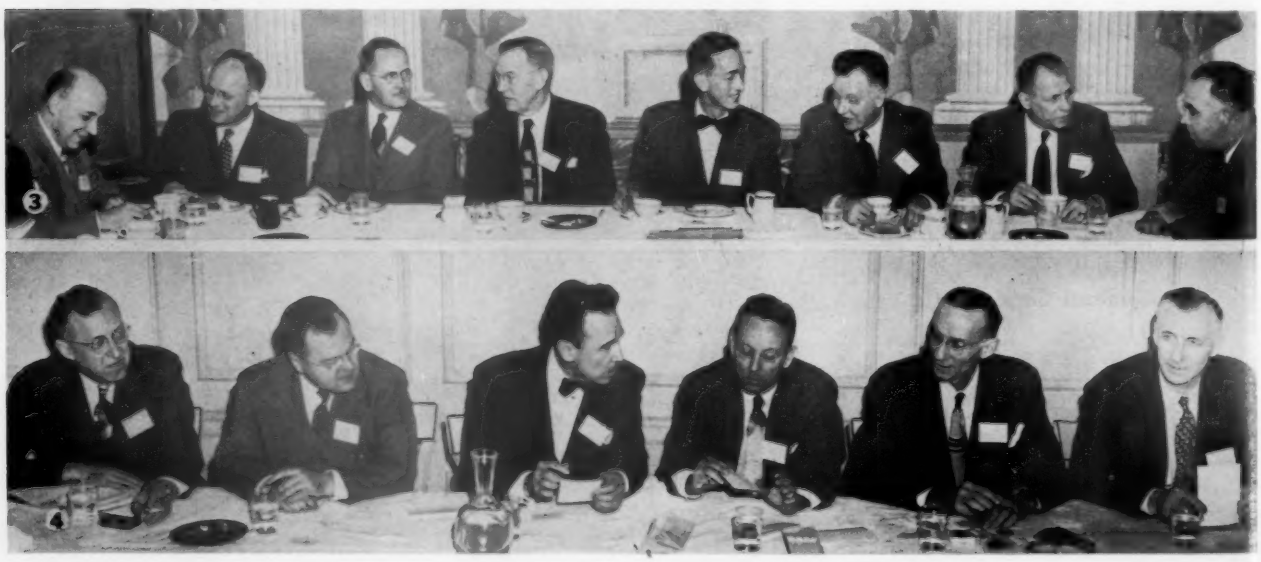
### Simplification of Gas Appliances and Standardization of Service Manual Material

W. C. Peters of Northern States Power Co. and George B. Johnson of Minneapolis Gas Co. in this paper pointed out the important role of the service man who is responsible for keeping automatic appliances in functional order.

"Today's serviceman must have a working knowledge of the physical properties of gas, the physics of pres-

3:—Work on Consumer's Premises Sub-Committee
L. to R.:—T. Darby, Columbus; R. H. Bussard, Washington, D. C.; C. S. Hazel, Philadelphia; J. G. White, Chicago; R. B. Barger, Hartford, Conn., (Chairman); J. M. McCaleb, Indianapolis, (Vice-Chairman); W. H. Weber, Brooklyn, N. Y.; S. E. Critchfield, Los Angeles.

4:—Corrosion Committee
L. to R.:—M J Pfeiffer, Cincinnati; R F. Hadley, Philadelphia; Pat H. Miller, Shreveport, La., (Vice-Chairman); Sidney E. Trouard, New Orleans, La., (Chairman); A. D. Simpson, Jr., Houston; M. C. Miller, New York.



5:—Meters & Metering Subcommittee Luncheon Conference
L. to R.:—Russ Seifert, Cincinnati; Bill Berger, New York; George K. Bachmann, Newark, N. J. (Vice-Chairman); R. J. Ott, Philadelphia, (Chairman); G. E. Griffin, Brooklyn, N. Y.; Elmer Becker, Indianapolis

6:—Motor Vehicles Luncheon Conference
L. to R.:—H. C. Verock, New York; Lynn Edsall, Philadelphia; F. M. Rudman, Detroit, (Chairman); F. G. Shoemaker, Detroit; James L. Coyne, Rochester, (Vice-Chairman).

sures, the chemistry of combustion, the fundamentals of electricity and electronics, and the mechanics of all types of controls which make the appliance automatic. . . .

"At the present time our cost per service call is about $2.25 per call, excluding overhead and clerical help. Thus each automatic appliance costs us about (.7 x 2.225) $1.58/year/appliance to maintain while the non-automatic appliance costs us (.25 x 2.25) $.56 per year per appliance.

"As mentioned before, the gas industry wants automatic appliances because the customer demands them and it is our best insurance for a continued revenue. Our job is to decrease the cost of maintaining these appliances."

A short film, presented on the screen, illustrated in humorous vein some of the difficulties encountered by the service man in adjusting appliance difficulties. Automatic appliances increase complaints, they estimate, in a ratio of about 2.7 when a customer changes from non-automatic to an automatic appliance.

**Demand Metering,** a paper by G. E. Griffin of Brooklyn Union Gas Company reviewed in brief the previous presentations on the subject. Requirements for such devices are accuracy, ease of installation and servicing, low first cost and simplicity of tabulation of chart readings.

Devices now in use were described and shown on the screen with diagrams and photos.

**Standardization of Service and Riser** by Peter G. Bruck, Peoples Gas Light and Coke Company, Chicago, is the interpretation of data received from a questionnaire sent to some fifty gas companies asking for sketches and details of their domestic service installations. Replies indicated a fair degree of uniformity.

Six diagrams accompany the paper which show main connections, location of curb cocks, interior standpipes, medium and high pressure service standpipes, regulator connections and simplification of pipe fittings used. The author stated that:

"Only the simplest situations encountered in gas service work have been covered and the discussion confined to the basic installation. Every day other conditions will be encountered that make such simple installation impossible. The point of this paper is to present current representative practices of the industry."

**Analysis of Trends in Customer Service,** by J. M. McCaleb of Indianapolis offers a series of tabulations based on fifty replies to a questionnaire sent to utilities. It indicated a trend to dispense with so-called "free service." The policy however varies considerably with the conditions under which the company operates and the future outlook especially with relation to house heating. The author did not offer definite conclusions or recommendations.

At the Wednesday session a paper by W. J. Menet, Peoples Gas Light & Coke Co. was titled:

**Effect on Meters of the Use of Natural Mixtures in the Gas Production Plant.**

The author stated in part:—

"When mixed gas was introduced into the system for ready identification of gas leaks it became necessary to artificially odorize at the stations to make up for the lack of odor of peak load reformed gas. In 1933, the send-out gas was odorized at the rate of 3½ gallons per million cubic feet with the odorant mixtures consisting of "forerunning" and commercial odorant. This amount was decreased in 1943 to 1 gal. of commercial odorant per million cubic feet and since 1944 has been limited to certain kinds of operations because at that time the Chicago District Pipeline Co. installed odorizing equipment at the Joliet Station using a highly concentrated odorant. Captain odorant is used currently at the rate of .9 lb. per million cubic feet.

The Canadian Delegation. Seated center is Jacob D. von Maur with Percy Geldard on his right and P. L. Schereschewsky, representing French Gas Association on his left.

"The odorizing agents used have had no detrimental effect on meter performance or the distribution system.

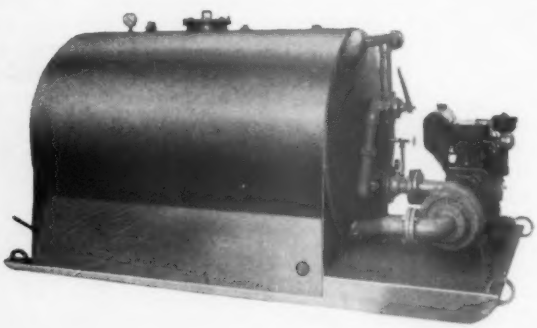
"The mixed gas was introduced into our system in October, 1931 and consisted of approximately 45 percent coke oven gas and 55 percent natural gas by volume with a heat content of 800 B.t.u. per cubic foot. Carburetted water gas and natural gas mixture has been used for peak periods. For emergencies coke oven gas enriched with butane or propane has been used to supplant the basic coke oven gas and natural gas mixture.

"An analysis by volume of the gases used before and after the change-over is as follows:

| | *1930 Sendout gas prior to change-over* | *1933 Sendout gas after change-over* |
|---|---|---|
| | % | % |
| $CO_2$ | 3.1 | 0.9 |
| ILL | 5.0 | 2.1 |
| O | 1.0 | 0.2 |
| CO | 11.8 | 2.9 |
| H | 44.1 | 25.4 |
| CH4 etc. | 22.7 | 62.3 |
| N | 12.3 | 6.2 |
| BTU | 531 | 800 |
| S.G. | .498 | .524 |

"In order to keep good meter maintenance in effect a planned condemnation program is believed to be essential. From 1920 to the beginning of the war, approximately 15 percent of all incoming meters were condemned each year. Meters condemned included obsolete types and those types of which only a small number were still in use. In the case of small groups of meters, it was felt the added expense of special parts and special repair techniques did not justify further use. . . .

"In 1934 a mixture of reformed natural gas and natural gas was introduced into the system to help meet the seasonal changes in send-

Skid model (above) mounts on your truck or trailer. Truck model (below) is built on make and model of truck you specify. Trailer models also available.

**Remove Condensate from Drips and Open Clogged Service Leads**

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***Hydro-Scavenger***

The Hydro-Scavenger cleans drips up to 25 feet deep . . . unloads at a rate up to 100 gallons a minute! Creates 27" Hg. vacuum for loading; 20 pounds pneumatic pressure for unloading — to overhead tank, if desired. Simple design and rugged construction assures years of trouble-free operation without loss of vacuum or pressure. Material handled does not pass through the pump to cause clogging or wear. Available in truck, trailer and skid models. Collection capacities from 50 to 1,000 gallons.

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out. At this time half an age change cycle had been completed since the change-over, and the amount of condensate in meters had definitely decreased. In meters set since the change-over only traces of condensate was found. The meter proofs in turn were showing steady improvement and in 1934 were: Correct 75.64 percent; Fast 16.60 percent; Slow 5.32 percent and Miscellaneous 2.44 percent. . . .

"The war years presented an opportunity for the study of a longer age change program since it was impossible to adhere to a strict seven year age change basis. By 1948 a total of 40,675 meters (which had been set only on mixed gas) had been returned from service 10 years old and the proofs of the meters were: Correct 86.4 percent; Fast 5.68 percent; Slow 6.66 percent and Miscellaneous 1.26 percent.

"The eleven year meters set only on mixed gas showed a similar improvement. Of the 79,209 in this category. 90.60 percent were correct, 4.45 percent were fast, 4.58 percent were slow, and 0.37 percent were miscellaneous.

"The life of a leather meter diaphragm is at present indeterminate with the gas now distributed in Chicago. Some diaphragms were found in good condition which have been in service for upwards of 35 years even with an age change program which was increased from five years to seven years in 1920 and finally to 10 years in 1948.

"There are 940,000 meters in service in the Chicago territory. The present classification of repair is calculated to produce the following percentage of repairs in a yearly repair program of approximately 100,000 meters.

| | |
|---|---|
| O.K. | 6% |
| Re-Adjust | 23% |
| Partial | 27% |
| General | 44% |
| Diaphragh | Less than 1% |

"It can therefore be concluded that in the case of The Peoples Gas Light and Coke Company, the change over from a straight manufactured gas to a mixed gas has been very advantageous in connection with meter proof and performance."

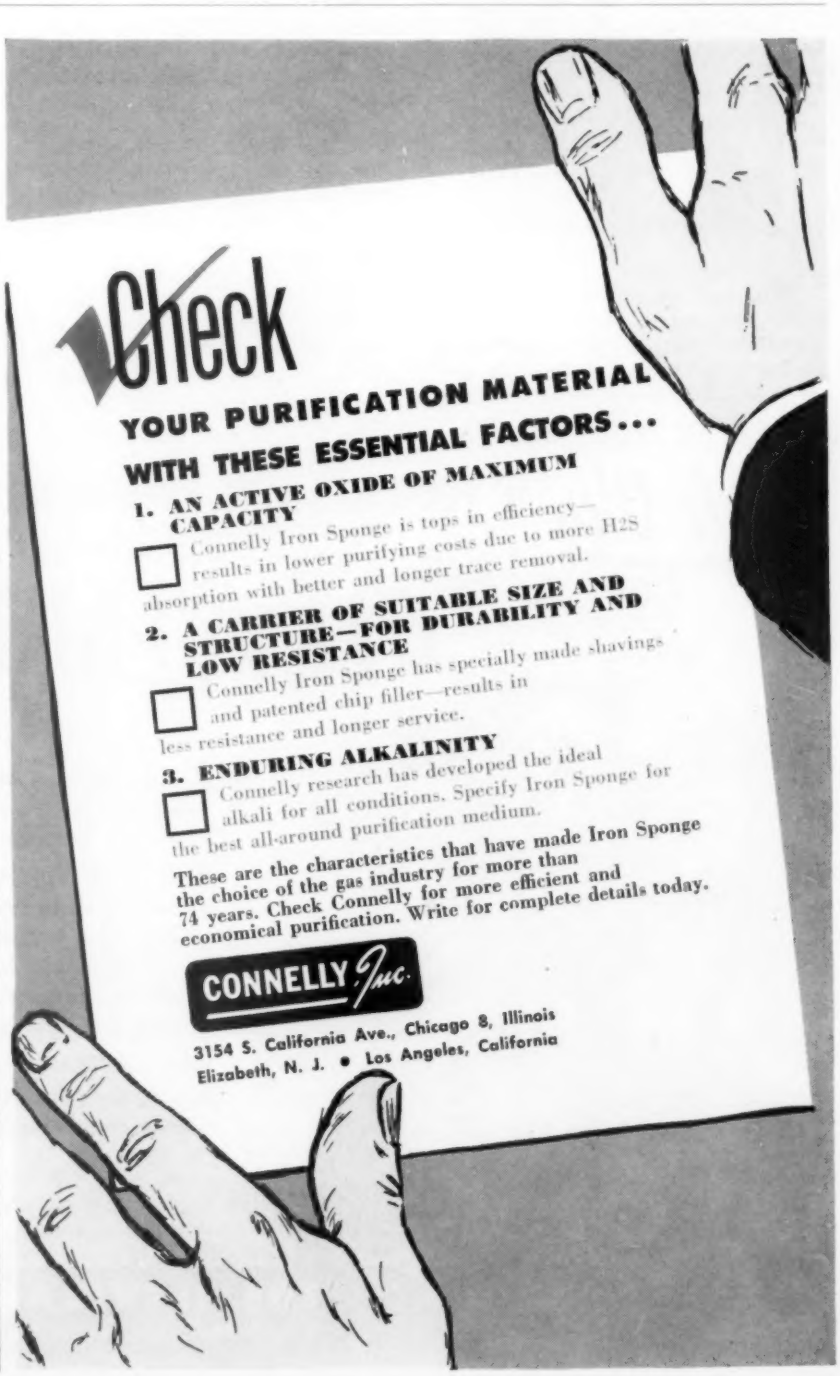
**Practical Cathodic Protection for Gas Distribution Systems** by A. D. Simpson Jr., Chief Engineer, United Gas Corporation of Houston, Tex., reviewed this subject in comprehensive form from the distribution operators point of view, using many diagrams to illustrate installation designs and methods.

Cost figures per mile for protection were cited and reduction in maintenance costs through the use of zinc anodes given in some detail. Standard anodes used are 14 lb. ½" x 3" x 36" rolled zinc plate of 99.9% pure zinc.

Magnesium alloy anodes are used to protect pipe with poor coating and for pipe in high resistance soils. Three size standards are used.

**Gas Conditioning**, by Michael Anuskiewicz Jr. of Brooklyn Union Gas Company, was read by William J. Towner, due to the author's absence. The paper deals with the functions and effects of oil fogging and humidification to prevent drying of the hemp packing in bell and spigot pipe and to overcome dust problems especially when a dry gas is introduced.

"Local situations will determine the extent of conditioning required. Although extremes cannot be recommended, it would be well to initially over-condition rather than under-condition. Insufficient initial treatment may well result in costly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WITH THESE ESSENTIAL FACTORS...
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expenditures to eliminate leaks which are beyond treatment, and in excessive service calls due to dust."

**Lightweight Service Trenchers** by R. B. Allen, Michigan Consolidated Gas Co. dealt with some of the experiences of his company in the use of lightweight service diggers. It was featured by a screen demonstration of equipment employed and methods of handling crews to make maximum use of the machines.

**Training of Street Department Employees** by H. M. Dwight, Southern California Gas Company gave an analysis of their training program. Basically it consists of the following elements:

I New Employee Indoctrination
II Mechanical Operations
III Job Record Keeping
IV Welding
V Pipe Locator Operation
VI Written Instructions and Follow-up

"The new employee's progress in basic training is followed closely by the district supervisors and an effort is made to vary his assignment from time to time in order to permit him to broaden his knowledge of our operations. In order to attain some degree of uniformity in this indoctrination program, to assume basic training in all of the duties of his classification, and to permit periodic check-ups by the district foreman, a record is maintained by the crew leader of the new man's progress in training. This record also serves as a guide for other crew leaders if the new employee is transferred from one crew to another. . . .

"Although it is difficult to measure the results of training in dollars and cents, the successful performance by relatively new men of operations which formerly were assigned only to old timers is an indication of the program's effectiveness."

**Service Training — The Orphan** by John MacLarty, Supervisor of Training, Rochester Gas & Electric Co. dealt with the importance of a thorough basic training for successful service men.

"A good serviceman on gas househeating controls, for example, finds a knowledge of basic electricity almost indispensable. More than one service manager has estimated justification of nearly 70 percent emphasis on electrical control training on the basis of service requirements. The present expansion of operations by many companies brings into sharper focus the unfortunate fact that the costly errors attributable to lack of guidance are increased proportionally with expansion. . . .

"We are paying for training whether we usher it into existence or not. These costs are camouflaged in excess labor costs, overtime call back and customer reaction. Training permits consolidation of these costs under one account. A percentage of gross profit on appliance sales represents an advance payment for good service."

**Servicing "Wrinkles."** In a brief address at the afternoon session, J. J. Gagen, Supt. of Service Bureau, Consolidated Edison Co. of New York, urged that all operating Companies in the A.G.A. with the aid of their service departments, submit timely and effective ideas for service improvement, so that ultimately these items, even though brief, could be presented in book form for the benefit of all.

J. M. Pickford officiated as chairman of the General Sessions. Copies of all the papers presented are ob-

*(Concluded on page 58)*


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# Natural Gas in New England

By
**Erick Larson**
Ford, Bacon & Davis, Inc.

CONSIDERATION of natural gas for New England raises a question as to the magnitude of the supply of this depletable resource. The method most frequently employed to answer this question would be to take the proven reserves in the United States from data resulting from the cooperative efforts of the American Gas Association and American Petroleum Institute and divide the figure there given by the estimated net production, including the volume necessary to supply New England. It would be concluded that we have in the ground the equivalent of some 30 to 40 years of our present needs.

### Reserves and Their Availability

The same sources of information supply data which show that in spite of rapidly accelerating production, proven reserves have been increasing. Considering this mathematical approach we are apparently justified in concluding that with uniform distribution and production there remains a period of at least 30 years before engineering ingenuity must provide a substitute gaseous fuel. Natural gas pipe line companies generally are amortizing their facilities at approximately 3 per cent annually, which appears to relate the known reserves to pipeline economics.

It seems to me that natural gas availability of from 30 to 40 years arrived at by mathematical calculation is not the whole answer. This numerical answer should be supplemented by consideration of other known factors.

**First,** considerable gas is produced in conjunction with oil. My recollection of federal statistics over a 25-year period is that each year oil reserves have been reported as being equivalent to only some 15 years' supply. Distributors of manufactured gas in New England continue to install equipment for processing oil and to the best of my knowledge have not reflected the mathematical approach; namely, 15 years, in the rate of depreciation applied to such facilities.

**Second,** with the daring and ingenuity so prevalent in the natural gas industry the possibilities underlying the Gulf of Mexico and the coastal states on the Pacific are being probed for additional supplies. Wells have been completed and the capacity to produce in many instances is comparatively high. These wells are costly. Bringing ashore the gas from the initial wells is not too difficult as it involves only a single line. A major problem will be the construction of a gathering system on the bottom of the Gulf of Mexico when the number of wells necessitates such a system. However, because of the cost and the mechanical difficulties and the large capacity to produce, proving up the full extent of producible acreage under coastal waters will be slow. The reserves assigned to any of these coastal water wells, if any are assigned, may be considered to be ultra conservative.

**Third,** we still hear much about gas being flared in considerable quantities. Conservation agencies rightly have focused attention on the availability of such gas. The cost of getting such gas into the natural gas company transmission lines and Federal Power Commission requirements regarding the quantities of gas reserves required for certification of facilities have been major factors in a continuation of flaring. Such flare gas, which in many instances has not been included in any reserve estimates, remains a potential source of supply.

**Fourth,** little publicity has been given to the tremendous amount of gas which is being recycled. Natural gas now being produced, stripped of its condensates and returned to the ground will be a possible major source of supply, particularly to the major pipe lines, commencing in a period from the near future to 15 years hence.

**Fifth,** we have only begun to probe the possibilities existing two, three and four miles beneath the surface of the ground. The results to date have fulfilled expectations. Producers show confidence in results by

*This paper presented at the Annual Business Conference of New England Gas Association on March 24th reflects the author's wide knowledge of pipe line problems and accomplishments. Mr. Larson began his career in the gas and oil fields of Texas. Subsequently some 10 years were spent in connection with the production, transmission and distribution of manufactured gas. Later he was employed by a holding company which operated both manufactured and natural gas systems. His experience as a consultant extends from 1936 to date—with the exception of two years on the staff of the Federal Power Commission — and includes every phase of natural gas company operations and financing. For the past 8 years, he has been associated with Ford, Bacon & Davis, Inc.*

*Many of our readers will recall Mr. Larson's series of articles on Pipe Corrosion and Coatings which appeared in this journal during 1937 and 1938, and published later in book form, now unfortunately out of print.—Ed.*

Erick Larson

continuing to probe but numerical proof of the quantities in such deep lying strata is considerably in the future.

**Sixth,** potential additions to our presently-known reserves, in quantities adequate to supply major pipe lines, most probably will result from so-called wildcatting particularly in Texas, Louisiana and Mississippi. Producers in those states have shown and continue to demonstrate their confidence that so-called wildcatting based on judgment will yield additional supplies when the price they will receive for the natural gas will justify the risk.

**And lastly,** the natural gas reserve estimates previously mentioned from which the answer in the mathematical approach was derived are conservative, as they should be. Such estimates reflect only definitely proven reserves.

In summation I would say that there are reserves adequate to supply additional pipelines and that considerable quantities of additional reserves are reasonably to be expected. Their availability to any particular pipeline is a matter of price, producers' policies and other considerations.

### Natural Gas Market Expansion

Besides New England only eight other states have no service from natural gas transmission lines. Construction under way and pending applications will provide service to four of those states. During the last 10 years, natural gas transmission lines originating in the South and Southwest have been mostly for the purpose of supplying increased quantities to areas already served. The period from about 1926 to 1932 witnessed the greatest expansion to date of natural gas into areas not previously served. Some of these areas previously had supplied their total requirements from local production. An example is the Appalachian area. In that area the all-time peak of production was reached in 1917 and there was a steady decline from that time until 1933. A rapid reversal then occurred and by 1944 the production had almost reached the 1917 level but demands were increasing more rapidly than production. The area had been served to a minor extent since the early 1930's by a pipe line originating at Kansas. In 1944 the first pipe line constructed, primarily to serve the Appalachian area, originated in the Southwest and terminated in West Virginia. Commencing in 1947 the Big Inch and Little Big Inch oil lines were converted to the transmission of natural gas and found their largest outlet in the Appalachian area. The result has been that the natural gas from the Southwest available to the Appalachian area has made it possible to increase sales within that area to all-time peaks. The long transmission lines in 1947 delivered into the Appalachian market area 214 billion cubic feet. Records are not available for 1948 but the natural gas imported into the area in that year was materially in excess of 214 billion cubic feet. Southwest gas available to the Appalachian area has not only provided for the declining production in that area but also has made it possible to increase sales.

It is interesting to note the expansion of natural gas markets in states which are not fuel deficient as are the New England states. For instance, in the State of West Virginia the sales of fuels excluding exports to other states are only some 8 per cent of the total therms of the various fuels produced in the state. Contrast this with New York state, where the therms of various fuels consumed are some 4,700 per cent of the production. West Virginia is particularly fortunate in having a wealth of solid, liquid and gaseous fuels. The people of that state have exercised their prerogative in choice of a domestic and commercial fuel. The result has been a practically complete saturation of gas space heating in the residential and commercial fields. The annual increases of natural gas sales in West Virginia in recent years are comparatively small because of the fact that it has already attained such saturation.

This condition of space heating saturation exists throughout the South, where natural gas is readily available and therefore increases are due primarily to demands for industrial purposes. Using space heating saturation as a criterion of increasing natural gas requirements, the tide of market expansion has gradually moved northward. In recent testimony one executive of a large natural gas distribution company serving in part one of the states bordering on the Great Lakes stated that if the Federal Power Commission approved the supplies requested, space heating saturations in his area would reach 70 per cent in the near future. In the Midwest the tide of high saturation of gas space heating has reached into Wyoming and almost to the Dakota state line. During the past year we have witnessed the first indications that the natural gas tide is commencing to sweep north-eastward into the State of New Jersey and into the metropolitan New York City area. A line for the primary purpose of serving the Philadelphia to New York City area is now under construction. The swiftness of the tide is indicated by the fact that before a foot of pipe for this new line has been put in the ground, its executives have announced a program of expansion and are expected momentarily to request authority for this expansion.

Numerically, one of the best examples of expansion is the line previously mentioned from the Southwest into West Virginia, which commenced operations in 1944 and its builders already have completed a second line and commenced a third. It is now delivering some 600 million cubic feet daily to its customers and has requested authority for expansion to over one billion cubic feet. The Big Inch and Little Big Inch lines, delivering some 100 million cubic feet per day when first converted to natural gas transmission in 1947, are now approaching 500 million cubic feet per day in delivery capacity and have requested authority to increase to over 900 million cubic feet daily. It would appear that for some years in the future the Appalachian market area alone could absorb the capacity of a new 30-inch transmission line approximately every two years and if the Philadelphia, New Jersey and New York City potentialities are fully realized, they too could absorb a capacity equivalent to some four times the line capacity now under construction. *The tide of natural gas moves northward and eastward and it is only a matter of time before it will move into the New England states.*

### Line Primarily for New England

The first question would naturally be, does the potential market in the New England states justify building a pipe line from the South or Southwest. An analysis of the area potentially to be served by such a pipe line indicates the population already being served by manufactured gas companies exceeds 7,300,000 and the number of customers is more than 1,600,000. Compare this with a single natural gas distribution system in the Appalachian area whose 1,000,000 residential, commercial and industrial customers in 1947 purchased 164 billion cubic feet of natural gas, which is an average of 449 million cubic feet per day, or equivalent to the capacity of approximately one and one-half 26-inch pipe lines. Therefore, the demonstrated requirements of other areas indicate that, with equivalent sales, more than two pipe lines 26 inches in diameter would be required to serve New England.

Taking collectively the States of Illinois, Indiana, Michigan, Ohio, New York, Pennsylvania, Maryland, Virginia, West Virginia and Kentucky and the District of Columbia, it is interesting to note that the residential sales in therms per customer of manufactured gas in 1946 amounted to 184 and in 1947 approximately 200. The mixed gas sales in the same classification totaled 335 therms in 1946 and 400 in 1947. Natural gas sales similarly aggregated 658 in 1946 and 787 in 1947. While independent states or companies differ somewhat, it is interesting to note that the relative sales in the residential classification were approximately 200 therms for manufactured gas, 400 for mixed and 800 for natural gas. A comparison of the commercial and industrial sales in the states mentioned indicates the market possibilities with mixed or straight natural gas are even more favorable than in the residential classification.

The gas purchased or produced by New England manufactured gas distributors within the possible service area of a natural gas transmission system amounted to some 74 billion cubic feet in 1947. This is equivalent to 241 therms per customer per year. It is therefore reasonable to expect that if all these New England distributors changed to mixed gas and increased their sales to the level now experienced in other sections of the country, the peak-day requirements of natural gas would approximate 325,000 Mcf.

It is not anticipated that all of the New England distributors would immediately change over to the distribution of straight natural gas. Considering only the possibilities of mixed gas it appears that the natural gas requirements of New England gas distributors would justify a single line and possibly two lines after fuller development of natural gas possibilities. This statement assumes there will be no material increase in costs of pipe lines above the present level.

Another question which has been raised is whether authority could be secured for a line which would primarily supply a single area. A review of the pipe lines now in existence indicates that to date all of the lines constructed have supplied a given area. Some of the early lines were those to Denver, Chicago, St. Louis, Detroit and Atlanta. These lines, constructed in the late 20's or early 30's, have increased their ability to serve the areas then taken on but have made no major attempts to expand into other large population areas. In recent years the major pipe lines have been constructed from the Southwest into California and into the Appalachian area. A major pipe line has been authorized recently to serve primarily the Philadelphia-New Jersey-New York City area.

There are several natural gas projects under consideration to serve the New England area including both extensions to existing systems and new lines from the Southwest. The history of the Federal Power Commission appears to indicate that it does approve of lines whose purpose is primarily to serve certain large areas, although it has ordered deliveries of minor quantities to distributors more or less adjacent to the transmission line outside of the areas in which the pipe line had made its primary contracts. It therefore appears from a regulatory viewpoint that there should be no major problem in securing authority to operate a line for the primary purpose of serving New England.

The shortest route from the Southwest into the New England area would be through the Appalachian area and into Connecticut near its northern border. It may be that certain cities in the east central part of New York State would be served from such a line. Following such a route the proposed line would parallel existing lines from the producing fields well into New York State. The usual practice has been for the existing lines to intervene in certificate hearings and protest against any service by the new line to already developed markets.

Where such opposition has been directed to undeveloped markets it has not been generally successful. The Federal Power Commission has given consideration to alternative proposals for service to an area by existing and new projects. The city gate price and adequacy of the service to be rendered appear to be the primary factors affecting the Commission's decision.

An advantage of going through the Appalachian states is that any New England line might be able to provide underground storage in existing depleted natural gas fields.

### Action Required by Pipe Line and Distributors

It has already been stated that the natural gas reserves in the country are equivalent to some 30 years of existing requirements. The major pipe lines generally have reserves equivalent to some 15 to 25 years of requirements under contract. There are large volumes of proven reserves which have not been dedicated to any particular project. A frequent objection on the part of producers to entering into long-term contracts for sale of their reserves is doubtfulness as to their status under Federal Power Commission regulation. The Federal Power Commission has, in a number of instances, when requested for a status determination, issued orders stating that the producers are not subject to federal jurisdiction. Legislation is now before Congress to more clearly define and limit the Federal Power Commissioner's authority over production. It would be necessary for any pipe line proposing to serve New England to secure by direct acquisition or purchase contract some 2 to 2½ trillion cubic feet of reserves.

Another problem of pipe lines is the price to be paid for natural gas. The field price for natural gas has risen rapidly in the last few years. An important factor in raising the price has been the Federal Power Commission's apparent policy that a company must have not only reserves equivalent to a certain number of years' requirements but must demonstrate that from those reserves there will be quantities available even in the latter years of production equivalent to the maximum pipe line requirements. This policy requires tying up of such huge quantities of reserves for such long periods that the price is naturally affected. However, pipe lines have been able to secure adequate supplies at a price. The more favorably located reserves must be acquired in the near future or the length of pipe line required will be affected adversely.

Recent pipe lines have contracted with producers for the total reserves required. Consideration must be given by any new pipe lines to the purchase of at least part of their requirements. The reason for this statement is the fear on the part of producers of tying up reserves for long periods of time without clauses which will cancel the contract should the Federal Power Commission assume jurisdiction.

Determination of the potential market for a New England pipe line is of equal importance to securing a gas supply. Financing of a pipe line project requires that practically the total pipe line capacity be assured and that a major portion be under contract. On the other hand, where pipe lines have had contracts for the full capacity the Federal Power Commission has granted certificates only on condition that others than those with whom contracts have been made

should be served. Both the pipe line and the distributors have an obligation to present proof of the existence of a market adequate to make the project financially sound. It is believed that with proof the distributors are willing to commit themselves collectively to take practically the pipe line capacity, actual signing of contracts could be deferred until certificates of convenience and necessity have been issued.

### Pipe Supply

Pipe has been and continues to be a major problem. There is much discussion as to the easing up of the pipe market. It appears that there has been some decrease in demand for tubular products within the United States but attention is also called to the fact that recently authority has been given for the production in this country and shipment to foreign lands of major quantities of pipe for oil line construction. However it appears that pipe will be available at a price within reasonable periods of time for both existing and new pipe lines and that prices may decline.

### Financial and Legal

It is essential that distributors be able to offer proof of financial ability to construct any facilities necessary to utilize natural gas and to change over to a higher Btu mixed gas or straight natural gas.

It is also necessary for a distributor to show in Federal Power Commission hearings that utilization of natural gas is within the legal bounds under which the distributor operates.

In practically all hearings before the Federal Power Commission involving projects in which a distributor is required to construct a certain amount of transmission line from the delivery point into the distribution system, the distributor is asked whether it would be willing to become a natural gas company provided the Commission ruled that the facilities to be constructed would result in determining the status of the distributor to be that of a natural gas company.

One of the primary requisites the Federal Power Commission considers in determining public convenience and necessity is whether the public will be served at rates less than those presently in existence, considered on a therm basis.

### Economic Advantages to New England

There could be no argument that on a therm basis the lowest rates generally exist in those areas served by straight natural gas, followed by mixed gas, and the highest being in those areas served with manufactured gas only. It is therefore to be expected that with natural gas there would be some reduction in rates which, in turn, would increase the market.

**Second,** manufactured gas companies are in general earning an inadequate return and it appears that this condition is rather prevalent in the New England states. It is believed that natural gas could be made available to New England at a rate which would make it possible to provide an adequate return under whatever basic principles of regulation the distributors are now operating and at the same time allow a rate reduction.

**Third,** it is to be assumed that New England regulatory authorities would follow the general practice throughout the country of allowing existing manufacturing facilities, including possibly benches and vertical retorts to remain in the rate base but be amortized at an accelerated rate. This assumption was considered in stating that natural gas would undoubtedly provide the means of obtaining an adequate rate of return. Much of the gas-manufacturing equipment in the New England states is old. It is my opinion that during the period of availability of natural gas this plant equipment will have become obsolete. An economic advantage therefore will be an ability to provide an accelerated amortization rate in order to take care of obsolescence as well as the other factors considered in depreciating properties.

**Fourth,** the question has been raised as to attracting industry into the New England area because of the availability of natural gas. There are many factors affecting industrial location, one of which is the availability of adequate fuels at a reasonable price. My personal views are that with the present demands for natural gas in the residential, commercial and firm industrial classifications, use of natural gas as a boiler fuel should at least be minimized. Such a policy would result in the bulk of the boiler fuel market continuing to be served by coal and oil. It is to be expected that the industries already located in the New England States would provide the bulk of the market at least for a number of years and therefore availability of natural gas, while possibly influencing some industries to locate in New England, would not necessarily be the source of any immediate considerable load.

### Time Factors

Important time factors are securing adequate reserves and a supply of pipe. Once a project has determined that the markets exist in New England, a supply of gas would have to be secured before hearings would be held by the Federal Power Commission. It usually takes approximately a year from the initiation of a project until such hearings are held. There are usually clauses in natural gas purchase contracts which stipulate that if a certificate has not been secured by a certain date, which may be a year to 18 months subsequent to signing the contract, the contracts become null and void. Once such contracts have been signed the project must be pushed vigorously.

Negotiations for the purchase of pipe proceed with securing a supply of natural gas. There have been various successful methods employed to have pipe contracts signed before hearings are held by the Federal Power Commission. The general feeling is that by the time any project to supply New England reaches the pipe requirement stage, such material will be available at a lower price than at present.

Negotiations for a supply of gas would be with only a comparatively few producers. The same applies to pipe. It appears that one of the more important time factors in providing natural gas for New England will be determining market requirements which depend on distributor policies. There are numerous distributors in the New England area and there appear to be more diverse interests and problems than it has been my experience to find in other areas. While all of you have had contacts with natural gas distributors, full exploration of the possibilities and localization of the economic advantages and service possibilities will require considerable time and experience. If the companies of New England wish to have adequate supplies of natural gas within the reasonable future, I suggest that the most important time factor is entirely within your own control. That time factor is the determination of your own policies to the extent that collectively the Federal Power Commission will be convinced that public convenience and necessity justifies a line into the New England States.

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Cumberland and Alleghany Gas Company Eastern Pipe Line Company Home Gas Company The Keystone Gas Company, Inc.
Natural Gas Company of West Virginia The Preston Oil Company Union Gasoline & Oil Corporation Virginian Gasoline & Oil Company

# Recent Court Decisions
## Affecting Gas Utilities

# Review of New Law Suits Affecting Gas Corporations

By
**Leo T. Parker**
Attorney at Law
Cincinnati, Ohio

ALL GAS CORPORATIONS have at their disposal *good* lawyers, but what can a good lawyer do to win a suit if the corporation's officials or employes already lost the suit. Statistics positively prove that the *only* dependable plan by which lawyers of a gas corporation are certain of winning a law suit is: Let the corporation's officials and employes conduct the business and *prepare* to win suits. This may be accomplished only by readers who keep informed of the cause and outcome of new and modern higher court decisions. To accomplish this purpose I have collected in the article several new and outstanding higher court decisions.

### Property Right

Considerable discussion has arisen from time to time over the legal question: Does a gas corporation acquire a legal "property right" when a city passes an ordinance granting a franchise to the corporation? According to a recent higher court the answer is yes, positively, and the city must comply with the exact terms of the franchise because it is a valid contract.

For example, in Birmingham Gas Company v. City of Bessemer, 33 So. (2d) 475, it was shown that a city passed an ordinance granting a thirty-year franchise to a gas company. In subsequent litigation the higher court held:

**"The testimony discloses that the ordinance adopted by the City Commission granted to the Birmingham Gas Company a franchise which was in the nature of a contract and embodied in the ordinance to run for a period of thirty years. We have repeatedly held that such an ordinance is not mere legislation, but one which creates a contract and property right entitled to protection by the courts. Or, to state it otherwise, a franchise grant, such as here involved, is the creation of a property right."**

### Resort to Higher Court

Considerable discussion has arisen from time to time over the legal question: If a Public Utility Commission issues a temporary order changing gas rates, can the gas corporation compel the Commission to vacate or reverse such order, or must the corporation appeal to the higher court to declare the order invalid?

For example, in State ex rel. City of Cincinnati v. Miller, 77 N. E. (2d) 456, the testimony showed facts, as follows: On October 29, 1941, the city council of Cincinnati passed an ordinance regulating prices to charged by the Cincinnati Gas & Electric Company for gas furnished to consumers in the city. This ordinance was authorized by valid state laws, and also, it was accepted by the gas company *to remain* in force until May 31, 1944, on which date the council passed two ordinances. One was an emergency ordinance fixing the same rates, terms and conditions for the sale of gas to remain in force until June 30, 1944, which ordinance was also accepted by the company, and the other ordinance specified the rates to be charged by the company for gas for the period between June 30, 1944, and July 1, 1946.

Later the Public Utility Commission issued an order temporarily amending these rates as a "final order affecting a substantial right."

In subsequent litigation the Supreme Court held that the order of the Public Utilities Commission temporarily altering the rates is a *final* order. In other words, the validity of such an order can be decided by a higher court but no suit can be filed to require or compel the Commission to vacate or reverse such order, even though it may be unreasonable or unlawful.

### Competition Benefits Public

Considerable discussion has arisen from time to time over the legal question: Can a supplier of gas obtain a permit to distribute and sell gas in the same area now being adequately served by another gas company? The answer is yes if other and additional gas consumers will be benefitted.

For example, in Panhandle Eastern Pipe Line Company v. Federal Power Commission, 169 Fed. (2d) 881, the testimony showed facts, as follows: The Federal Power Commission authorized the Michigan-Wisconsin Pipe Line Company to construct and operate a natural gas pipe line from a point in Hansford County, Texas, to the Austin storage field in Michigan, and also a branch line from a point in Illinois into Wisconsin, for the purpose of supplying natural gas to various communities in Wisconsin, Iowa, Missouri, and Michigan. The largest market to be served is the Detroit-Ann Arbor area in Michigan. Suit was filed to invalidate the authorization on the grounds that other gas companies are serving consumers in the Detroit area. However, since the testimony showed that a combined population of more than 1,388,000 people will *for the first time* secure the benefits to be derived from the introduction of the new line, the higher court approved the order rendered by the Federal Power Commission. This court said that the fact a particular community is already being supplied with natural gas is not a ground for refusing to grant a certificate of public convenience and necessity to another supplier which will *also* serve that area, if other consumers will be benefitted.

### Not Arbitrary

Recently, a higher court approved a Commission's order granting a

permit to a gas company to export gas to Mexico.

In State of Texas v. Federal Power Commission, 167 Fed. (2d) 804, the Federal Power Commission granted a permit for exportation of natural gas from Texas to Mexico. Considerable objection was presented particularly from gas corporations in Mexico.

Nevertheless the higher court approved the Commission's decision, saying:

**"We can find no basis in the record for the conclusion urged upon us that the granting was arbitrary and unreasonable and contrary to the evidence and the statute."**

Also, see Arkansas Louisiana Gas Company v. Federal Power Commission, 113 F. (2d) 281. This court said:

**"Normally it is for the commission to draw the conclusion that the present or future public convenience and necessity either requires or does not require the granting of a certificate. Normally an order granting a certificate may be set aside only when the evidence admits of but one conclusion, that its granting will not serve public convenience and necessity. . . ."**

This court indicated that the authority of the Federal Power Commission to grant an export permit is broad.

### Explosion Suit

Considerable discussion has arisen from time to time over the legal question: Under what circumstances may a gas corporation avoid damages to a consumer for an explosion of gas on the plea that the consumer's own negligence caused the injury? The answer is: When the gas corporation's employes were *not* negligent.

For illustration, in Atlanta Gas Company v. Johnson, 46 S. E. (2d) 191, it was disclosed that during the year 1940 the Atlanta Gas Company installed in a private home a gas meter, stove and hot water heater. The gas company sold these items to the home owner. Also, the company furnished gas to the home and repaired and serviced the appliances until 1946 when trouble with the hot water heater developed in that the pilot light would not stay lit. The gas company sent several repairmen to the home. These men repaired the meter and hot water heater in October, and again in November, 1946. On January 3, 1947, when the home owner was desirous of obtaining some hot water and found the pilot light not working, he struck a match for the purpose of lighting the pilot. The gas had escaped through the unlighted pilot and exploded in a violent manner, severely injuring the home owner who sued the gas company for damages. The home owner alleged that the gas company was liable because its employes were negligent in failing to repair the defective condition of the meter and hot water heater, after having attempted such repairs. The counsel for the gas company argued that it was not liable because the alleged negligence of the gas company's employes was not the proximate cause of the injuries to the home owner because the latter could have avoided the consequences since he knew of the defective condition of the pilot light.

In holding the gas company liable in damages, the higher court said:

**"It appears also that the plaintiff (home owner) exercised diligence in trying to determine whether or not gas was escaping before undertaking to light the pilot and that he failed to detect any gas odor."**

For comparison, see Powers v. Atlanta Gas Company, 48 Ga.App. 47. Here a plumber was engaged to repair a gas stove in a residence. In undertaking to do so he discovered that there was not a steady flow of gas into the stove. The meter through which the gas flowed was located in a dark compartment under the stairs in the hall of the house, and it was necessary for him to go into this compartment. In doing so he lit a candle in order that he might see and inspect the condition of the meter and gas pipes. When he lit the candle the gas that had escaped and was escaping about the meter was ignited and exploded, causing serious injuries to the plumber. The higher court refused to hold the gas company liable saying that the plumber did *not* use reasonable care to protect himself against injury when he lighted a candle at a place where he knew gas was escaping.

And again see Newill, 172 S. E. 232. Here a plumber was called by a housewife who knew from a slight odor that gas was escaping in her home. The plumber with the same knowledge struck a match in order to find the leak, thus causing a violent explosion from which the housewife was injured. She sued the gas company for damages. The higher court refused to award any damages.

### $40,000 Damages

According to a recent higher court a gas company may be liable in heavy damages for negligence of its employes, particularly if an innocent person suffers a severe injury as a result of this negligence.

For example, in Northern Indiana Public Service Company v. McClure, 81 N. E. (2d) 706, it was shown that a man named McClure had been a man of good health. After working all night he came home feeling normal, took his daughter to school about 9:00 A.M., returned, sat down in the kitchen for breakfast and a little while later while still so engaged suffered an acute attack of carbon monoxide poisoning. He sued the Northern Indiana Public Service for damages and proved that a half hour prior to his attack the company's employes were in the basement below him engaged in adjusting a gas stove. He proved that in the process of making the adjustment the employes were creating monoxide gas, an odorless gas.

In view of this testimony the jury held the gas company liable for $40,000. The higher court approved the verdict and said:

**"In view of this evidence we cannot say that the damages awarded by the jury are so large as to indicate prejudice, partiality or corruption."**

### Contract Obligations

Considerable discussion has arisen from time to time over the legal question: What is the legal duty of a municipality to comply with a contract related to sale of gas?

According to a recent higher court a city is subject to the *same* duties and liabilities as any other private corporation, and it cannot violate obligations of a contract because it deems it to be for benefit of its citizens to do so.

For example, in City of Philadelphia v. Fidelity Philadelphia Trust Company, 56 Atl. (2d) 99, the testimony showed facts, as follows: The City of Philadelphia in order to raise the funds necessary to balance its budget sold and assigned, for an initial period of 18 years, the future gas rentals due it from the Philadelphia Gas Works Company. The sale involved $41,000,000 to be repaid with interest at three and one-half per cent solely from the proceeds from the operation of the Gas Works. Later the city decided to take advantage of a drop in interest rates, and resell the gas rentals and apply the proceeds of resale to accelerate termination of the existing assignment.

The higher court held that the city could *not* do this, saying:

**"A city acting as a private corporation is subject to the same duties and liabilities as any other private corporation and it cannot violate the obligations of a contract entered into by it in its capacity as a private corporation. . . . There being no doubt that under its contract with the city the Trust Certificate holders have the right to be paid only out of the gas rentals and that the city cannot treat its obligations to these holders as a debt payable at will out of the funds of the city, the latter must live up to the letter of its contract."**

### Arbitrators Render Valid Decision

Arbitrators are judges chosen by parties in controversy to decide the matters submitted to them, finally and without appeal. If the award contains the honest decision of the arbitrators, after a full and fair hearing of the parties, a court will not set it aside.

For illustration, in United Fuel Gas Company v. Columbian Fuel Corporation, 165 Fed. (2d) 746, it was shown that the Columbian Fuel Corporation and the United Carbon Company sued the United Fuel Gas Company, successor to the Warfield Natural Gas Company, to recover the sales price of gas under the terms of an arbitration award. The testimony showed that the first two mentioned corporations, producers of natural gas, contracted to sell to Warfield all of the gas that they might produce from these properties. The price to be paid was 12 cents per m.c.f. until November 1, 1932, 14 cents thereafter until November 1, 1935, and 15 cents thereafter until November 1, 1940. From November 1, 1940 to November 1, 1945, the parties agreed upon a price of 15 cents, but they were unable to reach an agreement for the five year period beginning November 1, 1945, and resorted to arbitration. The arbitrators decided what the new rate should be for a 5 year period, but this decision was appealed to the court on the grounds that its decision was *not* binding.

The higher court upheld the decision rendered by the arbitrators, saying:

"The strict rules governing an action at law are not applicable to a proceeding of this nature. The arbitrators are usually laymen, inexperienced in the technical rules of law, selected because of their intelligence and integrity, and with the belief that they will do substantial justice between the parties. To require an arbitrator to follow the fixed rules of law in arriving at his award would operate to defeat the object of the proceeding."

### Gueffroy Succeeds McKee as Pres., Portland Gas & Coke Co.

As a step in the long-planned complete separation of Portland Gas & Coke Company from its electric affiliate, Pacific Power & Light, Paul B. McKee resigned April 7 as president and director of the local gas utility.

Elected by the board of directors to succeed him as president was C. H. Gueffroy, gas company vice president since 1945 and assistant to the president for 13 prior years. He has been with the company since 1919.

C. H. Gueffroy (right), new president of Portland Gas & Coke Company, receives congratulations from retiring President Paul B. McKee.

McKee will continue as president of Pacific Power & Light Company, which, along with the gas company, he has headed since 1933.

Gueffroy's advancement to the presidency was termed by McKee as "a well-earned recognization of long and effective service to the reorganization and refinancing programs, proceedings with respect to which are now before the Securities and Exchange Commission."


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## Texas Gas Transmission Plans To Complete 800-Mile Pipe Line By Year's End

TEXAS Gas Corporation of Owensboro, Kentucky, has received permission from the Federal Power Commission to build its 800-mile Texas-to-Ohio natural gas pipe line, and work will start at once to get the $73,500,000 line in operation by the end of the year, according to W. T. Stevenson, executive vice-president of the company.

"Steel pipe and other materials for the line have been stored along the right-of-way for many months," Mr. Stevenson said. "Similarly, ground and aerial surveys have been completed for some time; about 65 per cent of the total right-of-way has been obtained; financing has been accomplished; and six contractors who will work eight "spreads" of the route stand ready to start construction."

He explained that the preliminary work necessary to construct the line had been accomplished in advance of the FPC order so that more gas could be made available to consumers by the winter of 1949-1950.

By that time, deliveries through the new line are expected to reach 304,000,000 cubic feet a day. The 26-inch line has a designed ultimate capacity of 400,000,000 cubic feet a day and the company expects deliveries to reach that mark by the spring of 1950. The total system, including the new line, will consist of about 2,400 miles of pipe line with a total capacity of over 650,000,000 cubic feet per day.

There will be ten compressor stations with a total of 68,800 installed horsepower. The line will extend from the East Carthage gas field in Panola County, Texas, to a point near Middletown, Ohio, where it will connect with the Big Inch line system of Texas Eastern Transmission Corporation.

Under terms of the FPC's ruling, supplies from the new line will be distributed as follows:

1. Existing customers of Texas Gas' northern and southern divisions will receive up to approximately 120,000,000 cubic feet of gas a day over their present supplies. Cities served by the existing Texas Gas system include Greenville and Shelby, Mississippi; Memphis, Tennessee; Owensboro, Bowling Green, Franklin and Madisonville, Kentucky; Evansville, Terre Haute, Bloomington and Columbus, Indiana.

2. Texas Eastern will ultimately receive up to 235,000,000 cubic feet of gas a day, at the northern terminus of the line. Texas Eastern was ordered to sell 110,000,000 cubic feet a day to The East Ohio Gas Company, serving Akron, Canton, Cleveland and Youngstown, Ohio; and 100,000,000 cubic feet a day to The Manufacturers Heat and Light Company and The Ohio Fuel Company, subsidiaries of the Columbia Gas System, serving numerous cities in Ohio, Pennsylvania and West Virginia. Texas Eastern was also instructed to sell approximately 25,000,000 cubic feet a day to Philadelphia Gas Works Company, Consumers Gas Company, Allentown-Bethlehem Gas Company, Harrisburg Gas Company and National Gas & Oil Company.

3. Louisville Gas & Electric Company will receive 20,000,000 cubic feet of gas a day during the first full year of operation, 30,000,000 cubic feet a day during the second year, and 40,000,000 cubic feet a day thereafter.

4. Capacity in the line was reserved for Dyersberg and Union City, Tennessee; Madison and Lawrenceburg, Indiana; and Paducah, Kentucky.

A 63-mile section of the project between Lula, Mississippi and Memphis, Tennessee, is in operation. Contracts on the remaining construction have been let to the following firms.

1. N. A. Saigh Company of San Antonio—from the Carthage Gas Field in Texas to Lisbon, Louisana.

2. Latex Construction Company of Houston—from Lisbon to the Mississippi River.

3. O. C. Whittaker Company of Fort Worth—from the Mississippi River crossing to Lula, Mississippi.

4. Horrigan Construction Company of Houston—two "spreads" covering 210 miles between Memphis and Slaughters, Kentucky.

5. Williams Brothers Corporation of Tulsa—two more "spreads" totalling 180 miles to the Ohio River at a point near Louisville.

6. Midwestern Construction Company, Inc. of Tulsa—from Louisville to the northern terminus of Lebanon, Ohio.

Stone & Webster Engineering Corporation will construct the compressor stations. L. E. Ingham, vice president of Texas Gas, will supervise over-all construction.


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# Mid-West Regional Gas Sales Conference Attracts 450 With Fine Program

MORE than 450 gas sales executives attended the 18th Mid-West Regional Gas Sales Conference at the Edgewater Beach Hotel in Chicago on March 28, 29 and 30.

In the welcoming address W. L. Hayes, general sales manager, Montana-Dokato Utilities Company, stressed the necessity of mustering a trained force of "door-bell ringers and house-to-house canvassers." Dr. Kenneth McFarland, superintendent of schools, Topeka, Kansas, closed the conference with a dramatic appeal to the members of the Council to do everything possible as citizens to keep the nation from unwittingly drifting into economic slavery by permitting incompetent bureaucracies to take over social and economic regulation of their lives.

Dr. Clark G. Kuebler, president, Ripon College, Wisconsin, an authority on law and government, traced the historic parallel between the transition of ancient and modern countries from democracies to totalitarian states and emphasized the dangers inherent in today's confused world.

Greetings from the American Gas Association and a brief survey of A.G.A. in action were given by F. W. Williams, secretary, Residential Gas Section, representing H. Carl Wolf, Managing Director, who was unable to deliver a scheduled speech. Stanley C. Gorman, sales promotion director of the Water Heater Division of Gas Appliance Manufacturers Association, urged members to recapture the lead in sales of automatic gas water heaters by tying-in with the Court of Flame Program, jointly sponsored by G.A.M.A. and A.G.A.

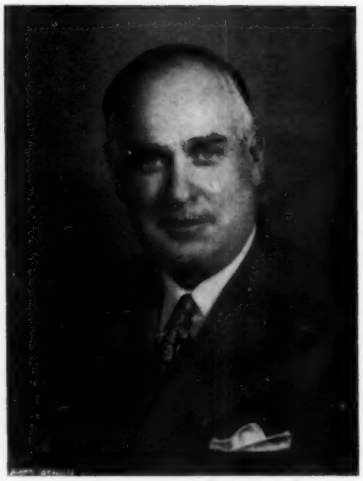
C. C. Young, research engineer, The Gas Service Company, Kansas City, told of the combination oil and gas burner as an aid in meeting peak load demands. Louis Ruthenburg, president, Servel, Inc., presented an inspirational picture of the opportunities ahead for gas salesmen. Rapid expansion of natural gas pipeline systems, increasing adoption by manufactured and mixed gas companies of new economical gas-making processes developed under the industry's coordinated Promotion, Advertising and Research (PAR) Plan, offer great opportunities for the gas utilities to withstand and reduce competition.

Insurance companies and gas utilities were alike in that their ultimate purpose is to provide comfort and security to customers, Henry W. Persons, Mutual Life Insurance Company, offered some of the points developed in training insurance salesmen that could be incorporated into the sales training programs of gas companies. I. S. Anoff, president, Albert Pick Co., Chicago, spoke on the close cooperation needed between gas utilities and food service equipment dealers to secure maximum dominance for gas in the commercial cooking field.

F. W. Williams

Carefully planned advertising and sales promotion programs are absolutely necessary in the sales of gas and gas appliances, Carl V. Haecker, Butter Brothers, Chicago, told the conference. But advertising, window display and point of sale promotional effort can be wasted if the salesman has not been educated to know his product and believe in it thoroughly. Harold E. Jalass, vice-president, Cribben & Sexton Company, left no doubt of his belief in the "clean, blue gas flame" as the ideal fuel. He pointed out the many advantages that gas and modern gas appliances have over all competition.

The automatic gas laundry dryer was demonstrated by Eleanor M. Morrison and Harriette Lundberg, of Michigan Consolidated Gas Company, and Mary N. Hall, of Elizabethtown, N. J. The remarkable progress made by LP-gas in solidifying the position of gas in areas not reached by utility gas mains was described by Howard D. White, executive vice-president, Liquefied Petroleum Gas Association.



Stanley C. Gorman

Past and present officers presiding at the sessions included Mr. Hayes; Ray L. Vandagriff, sales manager, Laclede Gas Light Co., St. Louis; B. H. Wittmann, The Peoples Gas Light & Coke Co., Chicago; and J. E. Walsh, sales manager, Metropolitan Utilities, District of Omaha. Howard D. Valentine, The Peoples Gas Light and Coke Co., was coordinator of the conference.

At a meeting of the Council held on March 29, Mr. Vandergriff was elected chairman of the Council for the coming year, and Mr. Walsh was elected assistant chairman.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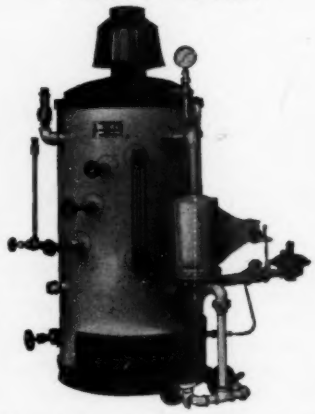
**1 H.P. to 45 H.P.**



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# A good day's selling done...

## His "Use the User" Plan is really paying off in Gas Refrigerator sales!

Sure, his finger is slightly sore from pushing doorbells, but he's pretty satisfied with himself . . . and so is his sales manager. This salesman has just landed some nice Gas Refrigerator sales, and has uncovered several more *live* prospects. He did the job door-to-door, too, but he didn't have to canvass "cold." He *used* his old customers to help pave the way for him.

This fellow is in the buyer's market frame of mind. He wasn't caught yawning when the seller's market pulled its fast fade. He didn't despair when easy-selling days came to an end. He and his sales manager knew what was needed—good, old-fashioned *outside* selling, backed by ideas that help *find* prospects and *create* sales . . . like "Use the User." This plan is still one of the most effective, most logical ways to find new Servel prospects. In fact, 55% of all sales are influenced by the user! That's why you should put your sales force to work following up customers' leads by calling on their friends and neighbors.

### Reward customers whose tips lead to sales

Most of your customers will be glad to give you leads, but you can really make it worth their while by offering them a specified amount of cash or useful gift with every sales-producing lead. And think of the goodwill you'll build. These users are primary prospects for other gas appliances. When they need a new gas range or gas water heater, *you* will be the dealer they will want to do business with. For detailed information on "Use the User" and other buyer's market selling plans, write to Servel, Inc., Evansville 20, Indiana.

# Sales Conference on Industrial and Commercial Gas

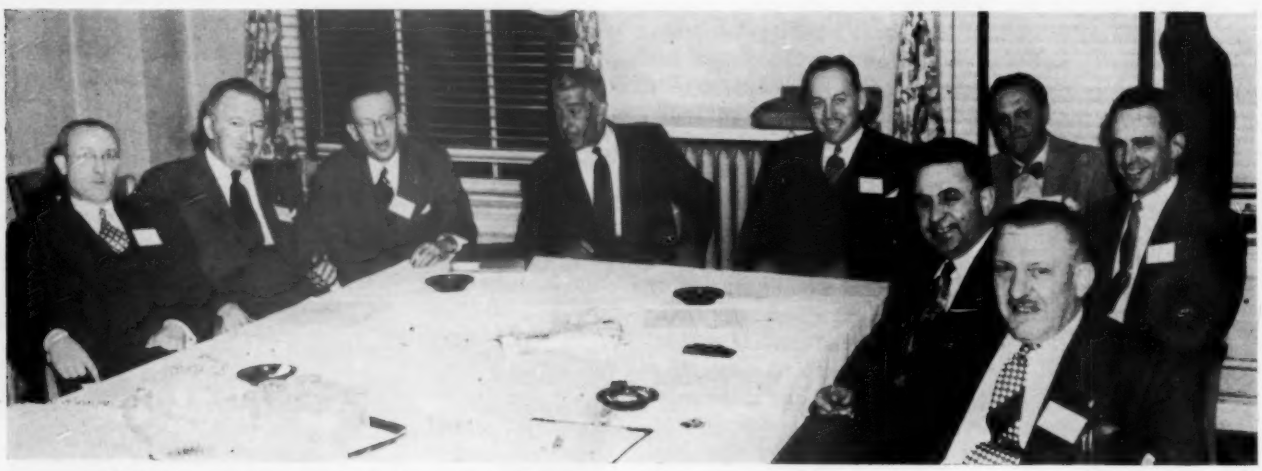
THE three day 1949 A.G.A. Sales Conference on Industrial and Commercial Gas held April 5, 6 and 7, in the Andrew Jackson Hotel, Nashville, brought together nearly two hundred delegates from 27 states and 2 Canadian Provinces. The sessions were divided into Commercial Gas Day and Industrial Gas Day starting and ending the conference respectively with a general session on the morning of the middle day followed by concurrent symposiums in the afternoon. All sessions were replete with talks on pertinent gas industry topics, and the speakers on the various subjects were well received by enthusiastic audiences. The program committee under the chairmanship of L. E. Biemiller, Consolidated Gas Electric Light & Power Co. of Baltimore deserves a vote of thanks for their selection of subjects and speakers. Never before have so many different subjects been discussed at one conference. For example, under the heading of "Diversified Commercial Sales," seven different applications of gas were described by as many experts in each field.

Two formal luncheons were held at which local men of note were the guest speakers. At one affair, Lipscomb Davis, President, Davis Cabinet Co., Nashville, took as his topic, "What Makes America Great." It was refreshing to be reminded of the principles through which this country grew to its present greatness and, according to Mr. Davis, it was up to each one of us as individuals to take a more active part in our community affairs to guard against these principles being overshadowed by the quest for material wealth and security. Mr. Davis further stated that, "The time has come for us to exert our determination and to take a stand to uphold the philosophy that led our ancestors to make America the greatest nation in the world."

Cecil Sims, a local attorney and former member of the legislature, was another guest speaker and made

3:—The first of two subjects of the Industrial Symposium was led by L. E. Biemiller, Consolidated Gas Electric Light & Power Co. of Baltimore. The panel discussing High Speed Heating was, left to right: C. C. Eeles, The Ohio Fuel Gas Co., Toledo; C. H. Lekberg, Northern Indiana Public Service Co., Hammond, Ind.; James Kniveton, Selas Corp. of America, Philadelphia; and Paul A. Furkert, Gas Appliance Service Inc., Chicago.

4:—In a Commercial Symposium, one of the subjects arousing much interest was Selling is Still Important. James V. Hall, Northern Indiana Public Service Co., Hammond and Chairman, Food Service Equipment Committee had a blue ribbon panel to assist him in the discussion. They are, left to right: J. R. Delaney, The Cincinnati Gas and Electric Co.; E. V. Fineran, Washington Gas Light Co., and J. D. Haverkamp, New Orleans Public Service Inc.



MEETING OF THE INDUSTRIAL PROCESSING COMMITTEE HELD DURING THE CONFERENCE

Clockwise around the table are: Paul R. Dryer, The Peoples Gas Light & Coke Co., Chicago; G. R. Van Kampen, Red-Ray Mfg. Co., New York; L. R. Foote, Bryant Industrial Division, A.G.E., Inc., New York; R. W. Millard, Chairman, Michigan Consolidated Gas Co., Detroit; C. C. Eeles, The Ohio Fuel Gas Co., Toledo, Carl Wierum, The Brooklyn Union Gas Co.; E. L. Harris, Public Service Electric & Gas Co., West New York, N. J.; E. V. K. Shutt, Central Hudson Gas and Electric Corp, Newburgh, N. Y.; and E. B. Freeman, Central Indiana Gas Co., Muncie.

an earnest plea for State responsibility. He said, "the time has come for the South to forget state rights and to adopt the overshadowing concept of State responsibility." Mr. Sims continued that many states were going under the false assumption that if an economic problem was too large for a State to handle, it automatically becomes a Federal problem. He cited the Port of New York Authority as an example of how two cooperating states could assume a project of gigantic proportions.

A surprise speaker at the conference dinner was Vice Chancellor, Madison Sarratt of Vanderbilt University, who gave a short address on "The Place of Education in the Modern World." He observed that, "the business of education and industry must be foremost in making democracy work in these United States." Pointing out that there is a great gap between power and the intelligent use of power in all its forms, Mr. Sarratt continued, "while we've produced much for our physical well-being, little has been done to aid our understanding which includes the bettering of human relations in all fields."

Several committee meetings were held during the three day conference at such times as not to keep delegates away from the sessions in which they were interested or had an active part. A total of forty-two speakers addressed the delegates at one time or another which sets a record on this score and also for the number of different subjects presented.

1:—Head table guests at a format luncheon held on April 5 included the guest speaker, extreme left, Lipscomb Davis, President, Davis Cabinet Co., Nashville. Others were, continuing left to right, B. T. Frank, Vice President, Milwaukee Gas Light Co., and Chairman Industrial and Commercial Gas Section; W. H. Ligon, President, Nashville Gas and Heating Co.; D. W. Reeves, Oklahoma Natural Gas Co., Tulsa, Vice Chairman of the Section, and Terry Hart, Nashville Gas and Heating Co.

2:—The method of water heater sizing was presented by J. Stanford Setchell, A.G.A., extreme left. Harry B. Wilson, The Brooklyn Union Gas Co., second from left, and E. E. Magnuson, Eclipse Fuel Engineering Co., Rockford, Ill., extreme right, gave an enlightening discussion on Storageless Water Heating. Second from the right is Frank H. Trembly, Jr., The Philadelphia Gas Works Co., and chairman A.G.A. Subcommittee on Commercial Equipment Tests, reported in great detail on the results of the committee activity.

Supplers attending the A.G.A. Sales Conference on Industrial and Commercial Gas at Nashville, Tenn., held a traditional breakfast at 7:59 A.M. on April 6th. Those present were, left to right, standing: H. O. Andrew, Frank J. Fieser, M. H. Douglas, Herman Gehnrich and Alvin M Stock. Seated, L. E. Clancy, A. V. Leudemann, Acting Warden, and K. V. Ludlow.

## "Big Angle" for "Biggest Inch"

Batteries of Clark "Big Angle" gas engine driven compressors totaling 88,000 brake horsepower will be installed in pumping and booster stations along Transcontinental's 1839 mile "biggest inch" pipeline from Texas to New York, according to C. P. Clark, president of Clark Bros. Co., Inc. of Olean, New York.

Clark said that the $6,000,000 order received through the Fish Engineering Corp., Houston, Texas, contractors for Transcontinental Gas Pipeline Corp., called for delivery of 55 Clark 1600 BHP angle units. Part of the order, one of the largest ever to be placed by the industry for gas engine driven compressors, is subject to the approval of the Federal Power Commission, it is understood.

As a result of a far-sighted policy and a continuous program of experimental and field research, Clark gas engine driven angle compressors are now in operation on practically every major pipeline in the U. S., as well as abroad, he added.

# Gas Appliance Manufacturers Assn. Discuss Sales Outlook at 14th Annual Meeting, Colorado Springs

STANLEY H. Hobson, President of the George D. Roper Corporation, Rockford, Ill., was elected President of the Gas Appliance Manufacturers Association at its 14th annual meeting held at the Broadmoor Hotel, Colorado Springs, Col., April 5 to 7.

Mr. Hobson is now vice-president of the Association, and he will succeed Frank J. Nugent, of Cleveland, Ohio, when his term expires on September 30.

Other officers elected to take office in October are: First Vice-President, Frederic O. Hess, of Philadelphia, Pa., President of the Selas Corporation; and Louis Ruthenburg, of Evansville, Ind., President of Servel, Inc. John Van Norden, of New York, secretary of the American Meter Company, was re-elected treasurer.

Three hundred delegates representing more than 500 manufacturers attended the three-day session.

Stanley H. Hobson

Frederic O. Hess

John Van Norden

Stressing the need for a unified and consolidated sales front to stimulate consumer education and increase the use and sale of gas appliances and equipment, Mr. Nugent pointed out that the most important sessions of the Colorado Springs meeting were those devoted to the presentation of the various sales, promotion and advertising plans being conducted and formulated jointly by the American Gas Association, GAMA, the gas utilities, the manufacturers and the distributors, dealers and the other outlets throughout the country. These organizations are now engaged in unifying sales and promotion efforts in a solid front aimed at reaching the consumer public, he said.

"The long expected buyers' market has arrived with a bang and success or failure in business will depend on salesmanship," Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Company, said at the convention.

Speaking as chairman of the American Gas Association promotion planning committee, Mr. Cuthrell surveyed the post-war business picture in the gas industry and offered the following eight-point program:

1. Constant improvement of equipment, both mechanical and in design.
2. More effective use of American Gas Association research.
3. Greater capitalization on public acceptance of the American Gas Association's Seal of Approval.
4. More effective dealer programs.
5. Better trained dealers.
6. More effective ways of reaching the mass building market.
7. Replacing equipment in strategic show places.
8. More effective advertising in greater volume.

Mr. Cuthrell said: "The gas industry is a growing, living industry. We are now serving more customers than at any time in history—over 22 and a half million households — a gain of 32 per cent in the last ten years. In addition, there are at least four and a half million 'LP' gas customers beyond gas mains. Gas sales have increased 11.7 per cent in the space of one year and let no one think that we acquired this increased load by default. We achieved this increase because we earned it, at least in some measure, through research, advertising and promotion. With a total of 27,000,000 customers cooking with gas, there is an annual replacement market alone for 3,000,000 ranges if we figure on a length of life of 9 years per range. We know there is a saturation of 68.5 per cent of automatic water heaters on gas lines and if water heaters last an average of ten years, which is certainly stretching a point in some communities, there is an annual replacement market here for 1,540,000 units—to say nothing of the non-automatics that should be replaced and the non-users that need sales talk. I don't have to tell you that the acceptance for gas house heating has reached unheard of proportions and while many of you have been in the doldrums because our gas has been in short supply, we are rapidly nearing the point when all controls will be lifted and you can capitalize on the market that will be crying for development. Our network of pipelines, both manufactured and natural, now stretches 333,400 miles—the equivalent of 13 and a half times around the earth's equator — exceeding by 106,000 miles all the railroads in the nation—and 14,600 more miles of natural gas pipe will be added as soon as government approval is given."

Spring and fall national industry-wide sales and advertising plans to promote advantages of gas as a cooking fuel and particularly the sale of all types of gas-operated ranges, were presented for review and discussion. A spring program designed to stimulate dealer sales of gas ranges is being launched by the Domestic Gas Range Committees of AGA and GAMA and by manufacturers. A more intensive industry-wide program is being formulated for the Fall, with a continuing year-round program envisioned for 1950, it was reported.

A gas range portfolio designed to impress dealers with the advantages of selling modern gas ranges and to merchandise the gas industry's national advertising and promotional programs which aid the dealer, is being distributed to dealers by the gas utilities and gas range manufacturers according to James Gorton, sales promotion director for the GAMA gas range program.

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### Frank M. Re Pass Jr. Joins Manning, Maxwell & Moore

Manning, Maxwell & Moore, Inc., states that Frank M. Re Pass Jr., has been engaged in the capacity of development engineer for Consolidated safety and relief valves.

Mr. Re Pass has been continuously connected with safety valve engineering and sales. He was formerly with Crosby Steam Gauge and Valve Company and recently Assistant Sales Manager of the J. E. Lonergan Company.

Mr. Re Pass will make his headquarters at the Bridgeport Plant of Manning, Maxwell & Moore, Inc.

John C. Leitch, Hancock valve specialist has been appointed to the southeastern territory with headquarters at Atlanta.

# Southern Gas Association Holds Annual Convention at Biloxi

LIEUTENANT General Ira C. Eaker, U. S. Army, (retired) was a feature speaker at the forty-first annual convention of the Southern Gas Association at Biloxi, Mississippi, April 20-22. He spoke during a general session on the capacities of Russia.

More than 50 authorities in the gas field, from universities and the industry, addressed the various sessions. Delegates participated in the many panel discussions.

R. A. Puryear, Jr., vice-president of the Alabama Gas Company, Birmingham, was general convention chairman. There were advisory committee meetings of the sales, accounting, and operating sections Wednesday morning, April 20. Miss Thelma Holmes, of Montgomery, conducted a home service workshop; James M. Floyd, Dallas, presided over an advertising round table. Jeff H. Collins, Sr. New Orleans, headed the operating session; C. L. Morgan, Houston, the corrosion round table, and W. V. Smith, Tulsa, an accident prevention round table.

A home service luncheon, with Miss Holmes and Miss Mary Ellen Lauchlin, Tulsa, was held Wednesday, and the home service sessions included talks by Jessie McQueen and H. Vinton Potter, of American Gas Association; Carl H. Horne, Birmingham, on "How Home Service can sell Gas Appliances"; and Mildred Clark, Tulsa, on "Company Kitchens for Home Service use." Martha Carnes, Servel, Inc., gave a refrigerator demonstration.

Residential sales sessions were under the chairmanship of J. J. Sheehan, Galveston. Topics and speakers were "The Future of Range Ignition." Frank H. Trembly, Jr., Philadelphia; "Home Service Presents a New Appliance," a presentation of the S. G. A. home service group; "Salesmanship vs. Subsidies," Bernard H. Wittmann, chairman of the A. G. A. Refrigeration Committee; and "Applications of Dealer Cooperation," Charley Lockhart, Dallas.

Rose Walker, New Iberia, La., conducted the industrial sales roundtable. C. H. Sanders, of Cooper-Bessemer Corporation, spoke on the "Dual Fuel Engine," and Dr. Paul E. Cox of the Louisiana Geological Survey, discussed the "History and Technology of the Production of Clay Lightweight Concrete Aggregate."

The commercial sales roundtable, presided over by J. D. Haverkamp, New Orleans, included a preliminary report on competitive commercial cooking tests conducted by Southern Methodist University. Speakers were: John J. Burke, Director of A. G. A. Cooking Promotion, on "What's New in Commercial Cooking Equipment;" Emmett A. Smith, Southern Heater Company, Inc., "Sterilization Requires Hot Water," and L. J. Fretwell, Tulsa, and Frank H. Trembly, Jr., Philadelphia, on "Gas—The Supreme Fuel."

Luther Tolbert, Dallas, conducted the transmission sessions. Topics and speakers were: "Cathodic protection of Transmission Systems," G. R. Olson and H. V. Beezley, Shreveport, La.; "Removal of Condensible Vapors from Natural Gas before Entering Transmission Systems," Dr. Frank H. Dotterweich, Texas College of Arts and Industries; and "Right-of-Way Problems," a panel discussion.

Distribution sessions under the chairmanship of Jeff Collins, covered the following: "Relation of Effective Mean Temperature to Gas Sendout Demands," H. R. Derrick, Birmingham; "Corrosion Control for Distribution Systems," C. L. Morgan; "Training Dealer Servicemen," Wade Foreman, Dallas; "Essentials of a Dealer Serviceman's Manual," Dwight M. Baker, Tulsa, and "Experiences in Cleaning Distribution Mains," D. B. Fancher, Birmingham.

Accounting sessions, under J. B. Cookenboo, Houston included: "Current Accounting Problems in the Industry," Orville S. Carpenter, Shreveport; "Decentralization of Accounting Functions," Lyman L. Dyer, Dallas; "Preparation of an Accountant for Managerial Responsibilities," Gay Carrol, Houston; "Job Evaluation for Office Employees," Carrington Mason, Houston; "Internal Auditing—A Management Tool," Oakah L. Jones, Tulsa, and "Effects of Changing Price Levels on Gas Utilities," Earl W. Pierson, Arthur Anderson and Company.

Warren Whitney, of the National Cast Iron Pipe Company, Birmingham, addressed the general sales luncheon Thursday on "Sails—Then Sales." J. M. Lynn, Jr., Dallas, headed Thursday afternoon's general sales program which included "Gas Air Conditioning for Commercial and Industrial Installation," C. E. Gammil, Jr., Carrier Corporation; results of research in the use of hot water in home laundries; Dr. Pauline Beery Mack, Director of the Ellen H. Richards Institute, Pennsylvania State College; and "Court of Flame," a water heater promotion demonstration, Stanley Gorman, of GAMA.

Professor Amos E. Neyhart, Institute of Public Safety at Pennsylvania State College, spoke at the general operating luncheon Thursday on "Improved Methods of Selecting and Training Drivers." These sessions included "Experiences in the Use of Steel Pipe," a panel discussion; "Remote Control of Gas Transmission and Distribution Systems," Walter Rufleth, of the Bristol Company; and "Wrinkles, Gadget and Labor Saving Devices of S. G. A. Companies," by C. H. Zachry, Dallas, and J. F. Holmes, New Orleans.

Friday morning's general session featured "PAR" and S.G.A., a presentation of the A. G. A. promotion, advertising and research program by Robert A. Hornby, chairman of the Committee, and E. P. Noppel, New York, Frank C. Smith, Houston, and Hugh H. Cuthrell, Brooklyn.

High point on the entertainment program was the manufacturers' friendship room, conducted by J. H. Schmidt, of Peerless Manufacturing Company, Dallas.

FIRST SEE GRIFFITHS

FOR—
INDEXES—METER AND REGULATOR PARTS—ORIFICES AND SPUDS — U.G.I. SERVISTOPS AND TOOLS — SPECIFICATION PARTS AND COMPONENTS. WRITE FOR CATALOG.

E. F. GRIFFITHS COMPANY
346 E. Walnut Lane, Phila. 44, Pa.
Serving the Gas Industries for over 40 years

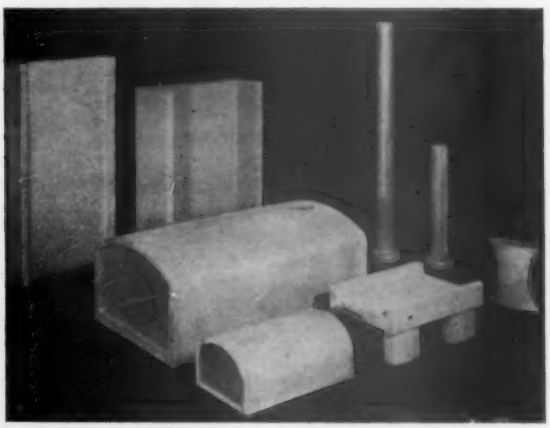
# The Application of Super Refractories to Gas Fired Industrial Kilns and Furnaces

By

**A. A. Turner and J. M. Smith**

The Carborundum Company
Perth Amboy, N. J.

MODERN INDUSTRY utilizes many different types and designs of gas fired furnaces and kilns for a wide range of processing and heating operations that develop a diversity of service conditions. As the result, selection of suitable refractory linings or parts thereof must be undertaken as an individual consideration based on the requirements of each unit. This procedure assumes greater import when choosing and applying super refractories for they are used ordinarily in furnace areas where other refractories for one reason or another are incapable of withstanding the conditions or providing the results desired. With their specialized characteristics, these super refractories have improved the performance of manifold kilns and furnaces to effect major economies. Moreover, the successful development of many current furnace designs has been made possible by the availability of such products offering the unique properties required.



Group of silicon carbide shapes used in heat treatment furnaces including muffles and tubes.

### Basic Types

Included in the super refractories group are products made from silicon carbide, aluminum oxide, and mullite, all of which are produced in the electric furnace. Kyanite, a natural mineral that is converted to mullite by high temperature calcination, falls in this same category. Each of these basic materials possesses separate and distinct characteristics that are retained to a high degree in the finished super refractories by using a minimum percentage of carefully chosen ceramic bonding agents. To better meet industry's broad needs, each product class embraces many specific varieties in which certain requisite properties are accentuated. This is accomplished through closely controlled grain sizings and with modifications to the bonds.

### Forms Available

These super refractories are supplied in the form of standard brick, tile, muffles, and special shapes. The latter may range from a small, relatively simple piece weighing only a few ounces to large, intricate shapes of several hundred pounds in weight. Laying, ramming, coating, and patching cements prepared from the same raw materials also are available.

### Applications

Applications for super refractories are almost as varied as the furnace equipment presently in use. Depending upon the problem, their installation may be in only a limited area involving just a few brick or they may be used to build an entire structure or lining. Likewise worthy of note is the fact that temperature alone does not always determine whether a super refractory should be employed. In numerous instances selection and usage are governed practically entirely by other characteristics of these products, such as thermal conductivity, load-carrying ability, and resistance to abrasion, heat shock, and corrosion by molten slags.

In melting non-ferrous metals, silicon carbide linings constructed of either prefired shapes or cement are used extensively in gas fired crucible type furnaces of both tilting and stationary designs. The prefired lining is usually comparatively thin to permit the use of adequate insulation for heat conservation and is built of jointed, sectionalized segments or made in one piece. A rammed, monolithic cement lining is somewhat thicker and when applied properly is quite hard and dense. The cement lining is also used in open flame furnaces although occasionally they are lined with brick and/or shapes. High temperatures, intermittent heatings and coolings, and flame erosion are resisted successfully by both kinds of linings to give longer life with less patching to effect lower costs per pound or per ton of metal melted. Furnace covers and pedestal blocks also are produced in silicon carbide material.

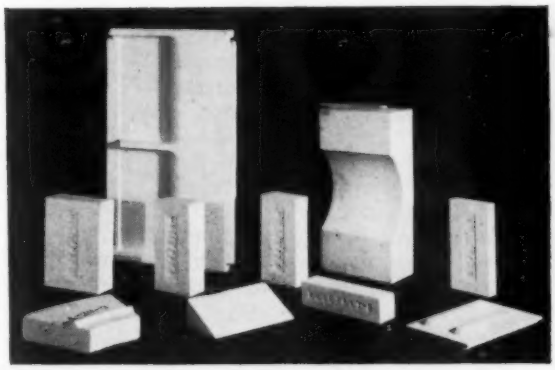
### Boiler Furnaces

With the high heat releases attained with gas as the fuel, sections of refractory settings in industrial boiler furnaces frequently are subjected to unusually severe service that necessitates repeated repairs and replacements. To reduce maintenance expense and secure more on-line operation, electric furnace mullite brick are applied to those portions of side, front, and bridge walls where difficulty is encountered. Here high refractoriness, chemical inertness, good spalling resistance, and low heat conductivity enable these brick to perform in an outstanding manner despite particularly rigorous conditions. Such characteristics also make this material's usage in burner rings of definite value. Where furnaces are equipped with water walls, silicon carbide cement and shapes are used on tubes in certain locations as a safeguard against flame impingement and erosion and where necessary to provide a radiant surface. A reduction in the heat transfer rate is offset by the material's high thermal conductivity.

### Heat Treating Furnaces

One of the most common uses for silicon carbide refractories in heat treatment furnaces is for hearths and

muffles that may be formed of single shapes or constructed of multiple segments depending upon the size of the unit and the service conditions involved. More uniform temperature in the work chamber, lower thermal gradient through the floor reducing the operating heat head, reduced fuel consumption, and faster furnace heats result from the unique thermal conductivity of these super refractories. Additional characteristics employed to advantage in this application are high refractoriness, hot strength, and resistance to mechanical abrasion, spalling and cracking.



Group of "Mullfrax" S converted kyanite shapes, also standard sizes, splits, soaps, wedge and arch.

### Special Applications

These same products are used as "dry" skid rails in reheating furnaces replacing water cooled pipes and uncooled alloy skids. They eliminate the cold spots experienced with water cooling, provide longer life, and effect savings in maintenance. In radiant tube fired furnaces, combustion takes place within silicon carbide tubes and heat is dissipated rapidly through the walls to the work. With these tubes, higher temperature operation is made possible than can be obtained with metal tubes and their resistance to elevated temperatures avoids sagging and subsequent gas leakage. Silicon carbide rolls in roller-hearth furnaces afford freedom from frequent replacement, give greater continuity of operation and result in less marking and pick-up. Baffles required in conjunction with specially designed gas burners are produced in silicon carbide for the extreme resistance to heat shock, cracking, spalling, and flame impingement; thermal conductivity, and exceptional strength possessed by this material. In car type annealing furnaces, cross flue covers and pier caps are formed of silicon carbide brick and shapes where their properties again prove of much value to operators.

### Mullite

Other super refractories likewise are installed in gas fired heat treatment furnaces because of the benefits resulting from their specialized properties. Electric furnace mullite brick and special shapes are used as hearth supports and piers. Their high load-carrying strength in upper temperature ranges averts sagging and slumping so that floors are evenly supported at all times. Burner blocks and tunnels rammed with fused alumina cement or made with prefired blocks of converted kyanite promote better combustion conditions as original hole size is held for longer periods. Moreover, they withstand very satisfactorily the conditions conducive to erosion, spalling and cracking. Super refractories manufactured from converted kyanite and a special type of fused alumina find application in the main lining of many furnaces for their resistance to high temperatures and spalling improves refractory life for greater economies. With their low thermal conductivity, heat loss is reduced which often is reflected in worthwhile fuel savings.

### Thermal Conductivity

In those gas fired industrial furnaces where the charge to be heated may be adversely affected by the gaseous products of combustion, silicon carbide and electrically fused aluminum oxide refractories or a combination thereof form the muffles or retorts. As silicon carbide and fused alumina have respective thermal conductivities approximately 12 and 4 times that of fireclay, heat is released rapidly to the charge which, in addition, means a lower combustion chamber temperature for the same heat input through the muffle walls. Such muffles are used in porcelain enameling furnaces, metallurgical and chemical process furnaces, and ceramic kilns. In these units other characteristics of the products that combine to make their utilization so desirable are refractoriness, inertness to furnace atmospheres, hot strength, and resistance to erosion, corrosion and cracking.

### Kilns and Ovens

Another and extensive use made of silicon carbide refractories in ceramic kilns is for the car furniture or super structure. Consisting of tile and posts, this furniture carries the ware to be fired as it is transported through the kiln. When used for this purpose, the superstructure must withstand frequent heatings and coolings without cracking, carry heavy loads, remain clean even after extended service, and possess a high strength to permit use of relatively thin tile which conditions silicon carbide material fills admirably.

Super refractories are applied also to baking ovens, lime kilns, still settings, glass lehrs, smelting furnaces, and other types of furnaces wherein their extraordinary characteristics benefit the operator through greater production and lower operating costs.

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### Texas Eastern Starts New Construction

Construction work on Texas Eastern Transmission Corporation's expansion program, designed to increase the capacity of its natural gas pipe line system to 740 million cubic feet a day, will begin immediately, R. H. Hargrove, president of the company, reported, following receipt of a Federal Power Commission's order.

Texas Eastern will lay 177.5 miles of 26-inch pipe line looping the two existing "Inch" lines from the company's Station No. 16, near Lebanon, Ohio, to a point approximately 20 miles east of Station No. 19, which is near Summerfield, Ohio, Mr. Hargrove said.

At the same time, 69.5 miles of 20-inch pipe line will be built looping two sections of the Little Big Inch in Texas and Louisiana; and 100 miles of 16-inch line will be laid from the Provident City field in Lavaca County, Texas, to the Baytown, Texas, terminus of the Little Big Inch.

Four new compressor stations will be built at oil pumping station sites near Beaumont and Newton, Texas, and near Many and Castor, Louisiana. These stations will develop a total of 17,500 compressor horsepower. Changes will also be made at four compressor stations in Ohio and one in western Pennsylvania to increase available power by 15,000 horsepower. At the Lebanon, Ohio, site a complete new 5,500-horsepower reciprocating compressor station will be built near the present 14,000-horsepower centrifugal station. These additions will brings the total compressor stations to 26 and total effective horsepower of the system to 272,650.

About 14,000 tons of 26- and 20-inch pipe have been delivered and distributed at various points along the route. The entire program will require 62,000 tons of steel pipe, 14 new 1,000 and 1,100-horsepower gas engines and reciprocating compressor units, and 15 centrifugal compressors with motors ranging from 1,250 to 2,000 horsepower. Total cost is estimated at $24,052,000.

# New Equipment

### A Deep Well "Clean-Out" Spudder of New Design

The Keystone 150 is an entirely new model, being an extension and expansion of the "50" series of Keystone well drills and blast hole drills.

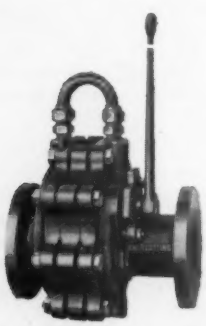
Some of these features include the two-sheave, double beam spudding device with double adjustment on the Pitmans and beam bearings for length of stroke and crank cycle.

The machine has a 42 ft. derrick of the telescoping type, 28 ft. long in retracted position, with a power-driven derrick raiser and extender, and a holding brake. The power unit is a 54 HP heavy duty engine, operating at 1800 RPM. Cable capacity is 1650 ft. ¾" line on either side of the divider for drilling. For cleanout, the full drum capacities are ⅝"—5675 ft.; 9/16"—6990 ft. The total weight of the machine, ready for truck mounting, is 15,600 pounds, with catheads, calf reel and derrick but without cables.

Made by Keystone Driller Co., Beaver Falls, Pa.

### Steam Jacketed Valve

For the transmission of viscous materials which congeal or harden and will not flow at ordinary temperatures, there is available a steam jacketed valve for this purpose.



Viscous Materials Valve

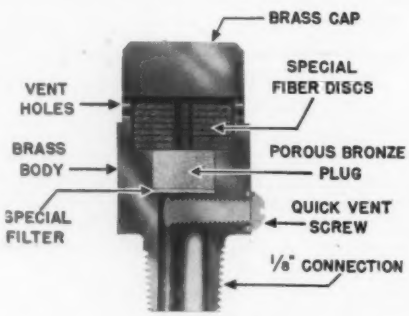
In these valves the disc slides across the ports in a rotating self-clearing action actuated by a quick operating lever. When wide open, the valve offers straight through flow with unrestricted passage. All parts move in a parallel plane so that the mechanism is non-wedging.

Available in 2, 3 and 4-inch sizes, for 125 psi line pressure and 125 psi jacket pressure. Made by Everlasting Valve Company, 45 Fisk Street, Jersey City 5, N. J.

### Hot Water Air Valve

The Taco-Vent hot water air valve shown here, functions as follows:—

Air passes through filter, porous bronze plug, fiber discs and vent holes to atmosphere.




Taco-Vent Valve

Water, following the air, is cleaned of all foreign matter by the filter.

The water is "slowed up" as it passes through the porous bronze plug, and when reaching the fiber discs, causes them to swell, completely sealing the valve.

As more air accumulates the fiber discs dry and shrink, thus permitting the valve to again vent, repeating the above cycle.

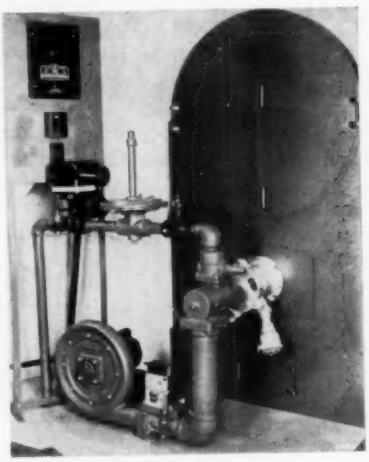
Applied also for convectors and radiant baseboards.

Made by Taco Heaters Inc., 137 South St., Providence 3, R. I.

### Gas Boiler Burner Package

Complete automatic burner assemblies for gas-firing boilers from 10-180 hp. have been introduced by the Bryant Industrial Division, 1020 London Road, Cleveland 10, Ohio.

Only gas piping and electric wiring are needed to complete the installation of the pre-engineered elements of the new Series "BB" Boiler Burners, which are shipped as complete packages, including protective equipment and pressure controls. Suited to industrial or commercial application, as original



Bryant Boiler Burner

equipment, or replacing or supplementing oil or coal operation.

Principal element is the Bryant Pow-R-Sembly, including constant pressure blower, single or double burner nozzles each with compact proportional mixer, zero regulator, motorized air valve, electric ignition pilot, and manual reset safety gas valve. Steam pressure controls, or remote thermostatic control, or both are furnished.

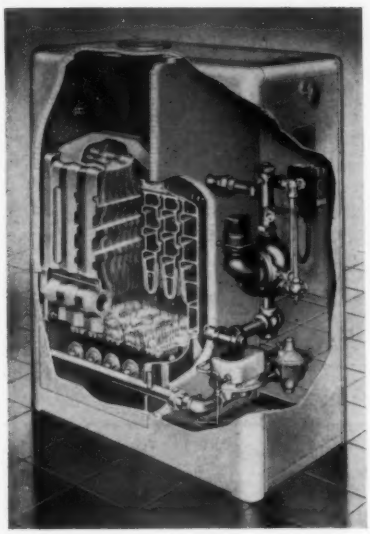
Operate automatically over three steps of heat output. For light loads, the pilot operates, while the main burner automatically takes over at "low fire" or "full fire" as required.

Supplied with valves sized for manufactured and mixed gas, or for natural and LP gas.

# and Appliances

### New Gas Heating Unit

A new line of gas boilers for small residential heating installations is now being marketed by The National Radiator Company, Johnstown, Pa. Designed exclusively for gas firing, the new series is available in six sizes having net ratings ranging between 110 and



National Boiler

390 sq. ft. of steam radiation or 175 and 625 sq. ft. of hot water radiation.

The National "22" Series Gas Boiler is approved by the A.G.A. for operation with natural, manufactured, mixed and liquefied petroleum gases.

The insulated jacket is 42½ in. high, 17⅝ in. wide and 22⅛ in. to 37⅜ in. in length.

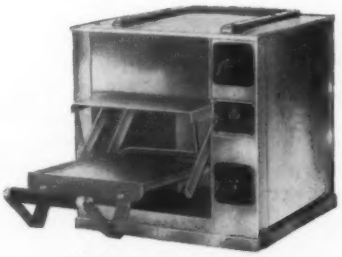
The new boiler can be used with both steam and hot water heating systems, or as either a direct or indirect hot water supply boiler for large volume domestic hot water requirements.

### Small Broiler & Grill

For small establishments and for household use this unit affords the features of the larger models of the same manufacturer, but with less cooking surface.

Titled the "Mighty Midget," it is 16¼ inches high, counter space required 15½ inches square. Side grease tank adds 2½ inches to width at top.

All stainless steel body. Burners in top of unit provide glowing radiant heat from above and conducted heat from below.



"Mighty Midget" Broiler

Larger models are for general restaurant and counter use.

Made by Magikitch'n Equipment Corp., Quakertown, Pa.

### Estate Automatic Range

New 4900 series Estate Gas Ranges again feature the Bar-B-Kewer, originated and patented by Estate in 1939. This separate meat oven accommodates whole hams and roasts, leaving the oven free for baking biscuits, pies and casseroles.

An important new accessory is the Converto-Grate, which replaces the Grid-All as a super-giant burner for big pressure pans or kettle canning.

Estate Model 4949

Other Estate features: Time-Estate Automatic Oven Control; chrome fluorescent top lamp; oven light and window; one-piece mantel back, work surface and burner dial panel; Fiberglas insulation with Heat-Seal doors; new Pyromatic "triple-click" burners.

### Cast Iron Pipe Saw

Illustrated below is the Wachs National Pipe Saw for cutting cast iron and steel pipe from 12" to 48" diameter.

This unit, clamped around the pipe in the open or in the ditch travels around the pipe to make clean accurate cuts at a speed of about two inches per minute.

Two men can handle the machine which weighs about 200 pounds including the air motor housed in the unit.

Arranged with adjustments for various pipe sizes. Setup time is approximately fifteen minutes.

Wachs Pipe Saw

Has welded steel body, alloy steel gears and shafts, bronze bushings and ball bearings and high speed steel milling cutter.

Shipped in rugged wooden storage case by The E. H. Wachs Co., 1527 North Dayton Street, Chicago 22, Ill.

### Heavy Duty Thermometers

Production of a new, heavy duty, dial type thermometer is announced by Qualitrol Corp., East Rochester, N. Y. Pointer indications may be read from almost any position as the concave dials are curved at the indicating graduations. Designed for many industrial applications including L. P. Tank Farms. Choice of seven temperature ranges from minus 90 to 1000 degrees F. Dial sizes are 2", 3" and 5".

The connecting nut and stainless steel stem will withstand pressures in excess of 2500 P. S. I. Cases are hermetically sealed and the pointers show no oscillation under extreme vibration conditions. Fully described in Bulletin No. 100.

# New Cracking Plant Operates at Manchester, England

Petrochemicals Ltd. announce that they have started up the first cracking furnace of their plant for producing chemicals from petroleum, at Partington, near Manchester, England. The unit is working satisfactorily and treatment of the raw material is at a rate in excess of nominal capacity, according to the company's report.

The cracking furnaces transform the charging stock—a petroleum distillate—into liquids and gases which are processed in subsequent plants to yield finished chemicals. The valuable gas yield is even higher than was at first anticipated. The gas is of high calorific value and part of the output is being piped direct to the Manchester Corporation Gas Works to blend with the town gas supply to meet the gas shortage in the area.

The eighteen million dollar all-British designed and British built Petrochemicals plant employs the Catarole process, an invention originated and developed in England which enables the production of over 70 different chemicals from the liquids and gases derived from petroleum, including raw materials for paints and varnishes, rubber and plastic products, dyestuffs, detergents, drugs, anaesthetics, pharmaceuticals, special fuels, and numerous other commodities essential to special fuels, and numerous other commodities essential to export trade and to improve living standards.

Until now, many of these chemical raw materials have been either imported from dollar areas or produced by less economic or less productive methods. A number of the chemicals have never been available in Britain before in bulk quantities, the company states.

The gas piped to the Partington gas works consists mainly of methane, hydrogen and a little ethane, and has a calorific value of 890 Btu. less than 5% inert constituents and less than .6% oxygen. It is free from sulphuretted hydrogen, tar and oil, and the naphthalene content does not exceed 0.1 grain (0.006 grams) per cubic foot.

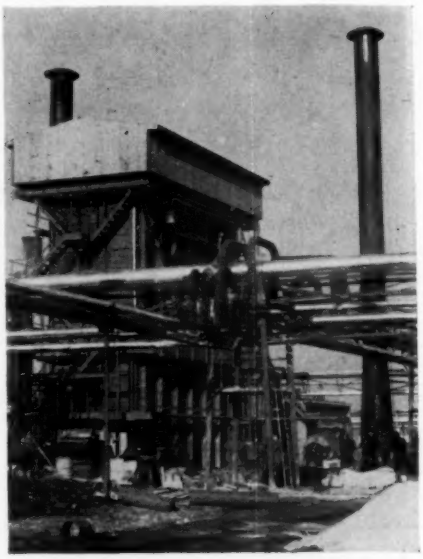
The Gas Department proposes to use this gas for the enrichment of blue water gas from a new plant now under construction.

The blue gas, using coke as the basic fuel, will have a calorific value of 290 Btu. and the quantity required for diluting the 600,000 cubic feet of oil gas will be approximately 1,650,000 cubic feet a day. Any balance of blue water gas production not required for dilution purposes will be enriched in the normal way by gas oil.

It has been estimated that the use of this gas in this way will save the Manchester Gas Department either 30,000 tons of coal annually or 1,000,000 gallons of oil.

Apart from the advantages of an increased supply of gas at a relatively early date, had the equivalent quantity of gas to be manufactured in the normal way in a coal carbonizing plant, a capital expenditure of about $1,000,000 would have been required and approximately 53,000 tons of coal a year used, together with additional carbonizing labor.

Alternatively, had it been decided to make an equivalent volume of carburretted water gas, nearly 1¼ million gallons of gas oil annually would have been required for enriching purposes.



Catalytic Cracking Furnace

## Milbourne to Speak at P.G.A. Meeting on Catalytic Plants

Dr. C. G. Milbourne, Gas Production Division of Surface Combustion Corp., will present a paper on the new Catalytic Cracking Gas Plants installed at Reading and Harrisburg, at the meeting of the Pennsylvania Gas Association in Wernersville, Pennsylvania, on May 17.

The meeting, which will be attended by executives from leading gas utilities in the state, will be held on May 17-19. Dr. Milbourne has played an important role in the development and construction of these catalytic cracking plants. Although the plants are currently employed to eliminate peak load shortages, they are also adaptable as economical base load plants. Dr. Milbourne will describe the plans for operation of these units as base load plants by the conversion of natural gas to coke oven gas replacement, to conform with the distribution systems of the utilities involved.

The Reading, Pa. plant was described in the February issue of this Journal on page 29.

A third plant, similar to those at Reading and Harrisburg, is now under construction at Allentown, Pennsylvania, and is expected to be the subject of considerable discussion at this same time.

## Wire Mesh for Gas Equip't.

Bulletin 11 titled: "Little Known Ways To Save Big Money With Fine Wire" issued by Otto H. York, Inc., East Orange, New Jersey, concerns separation as desired in mist extraction, gas filtering, tower packing, cleaning and baffling with York elements made of technical knitted mesh. It is of special interest to gas and oil refinery engineers, process industry engineers, chemical engineers and others. 8 pp, 8½x11, copy on request.

The Reliable Shut-Off for Street Mains

**THE GOODMAN STOPPER**

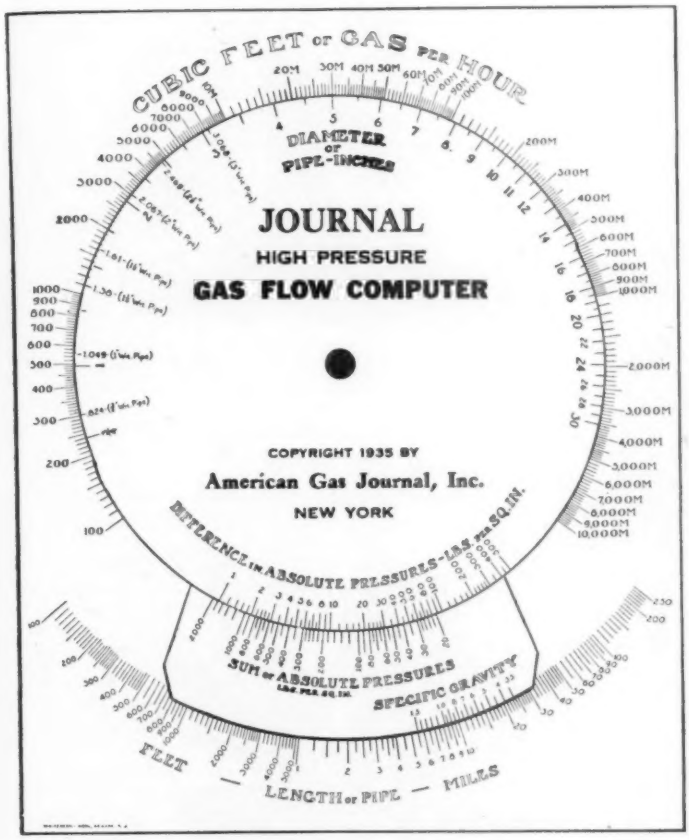
**Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.**

**Ask for circulars on this and other distribution equipment.**

***Nearly a half century of service to the Gas Industry.***

**Safety Gas Main Stopper Co.**
**523 Atlantic Avenue, Brooklyn, New York**

# "Journal" Gas Flow Computers




**These Improved Gas Flow Computers are available in durable plastic, encased in a convenient leatherette cover with complete instructions.**

**Actual Size 6¼ x 7½**

☆

**High Pressure Computer Range:**

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in. 20-2000
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

**Low Pressure Computer Range:**

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
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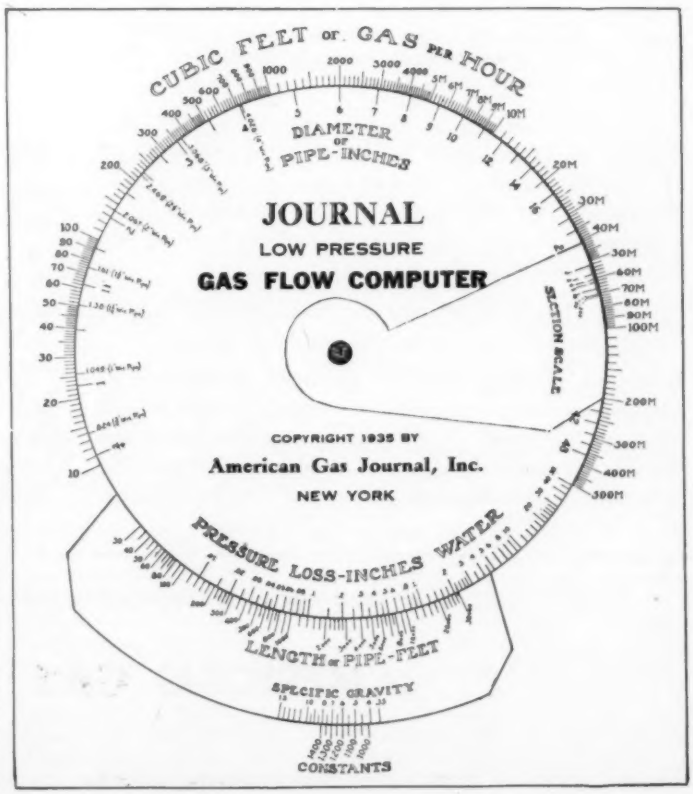


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# News of the Gas Industry

## Southwestern Short Course Reached Record Attendance

Highlight of the opening session of the Twenty-fourth Annual Southwestern Gas Measurement Short Course, held at Norman, Oklahoma, April 12 to 14, was an address entitled "Gas Pipe Line Financing" given by Mr. C. T. Chenery, Chairman of the Board, Southern Natural Gas Company. The meeting was opened by Mr. C. E. Terrell, Chairman of the General Committee of the Short Course; and the address of welcome was given by Dr. G. L. Cross, President of the University of Oklahoma. The Chairman of the Executive Committee, Dean W. H. Carson of the College of Engineering, University of Oklahoma, outlined to the students from industry the operation and aims of the course.

The enrollment reached 846, which exceeds that for any Short Course in the past. Seventy separate classes on diversified subjects covering every phase of gas measurement, gas regulation, and related subjects were taught by qualified instructors from the University of Oklahoma and from industry.

29 manufacturing concerns had educational exhibits available for the students to examine during their free periods and visual aids to assist in a better understanding of the operating characteristics of the equipment.

Each year the General Committee awards seven cash prizes as a means of stimulating interest among those attending. Contestants are required to write a paper on "What I Learned at the Gas Measurement Short Course." First prize is $25.00; second prize, $15.00; third prize, $10.00; and there are four fourth prizes of $5.00 each. The winners in the competition for last year's Short Course were announced during the general session on Wednesday. They were as follows:

*First prize:* W. H. James, Lone Star Gas Company, Dallas, Texas.

*Second prize:* Joe J. Hickey, United Gas Corporation, New Iberia, Louisiana.

*Third prize:* G. W. Nickell, Phillips Petroleum Company, Penwell, Texas.

*Fourth prizes:* Jim Berling, Texas Gulf Sulphur Company, Newgulf, Texas; Glenn E. Graef, United Gas Pipe Line Company, San Antonio; James W. Smith, Peoples Natural Gas Company, Ralston, Nebraska; E. T. Rogers, The Shamrock Oil and Gas Corporation, P. O. Box 631, Amarillo, Texas.

Mr. J. L. Griffin, Chairman of the Publications Committee, has announced that the Proceedings of the Short Course will be published in bulletin form, and a complimentary copy will be sent to those who registered.

The General Committee issued a Practical Methods Report which was prepared by the Chairman of the Committee, G. E. Greiner. The title of this report is "A Condensed Outline of Supercompressibility Determination Methods."

Dean Carson announced that the Executive Committee elected Mr. W. H. Woods, Gulf Oil Corporation, Houston, Texas, to succeed Mr. Terrell as Chairman of the General Committee. Mr. Woods will serve as General Chairman during 1950, and he will be responsible for the over-all activities of the 1950 Short Course to be held April 11, 12, and 13th.

## Production and Chemical Conference of A.G.A. May 23-25

Developments in the production and chemical fields of the gas industry will be presented at the Joint Production and Chemical Conference of the Technical Section of the American Gas Association, May 23-25, at the Hotel New Yorker, N. Y. The program includes presentations on advances in engineering, chemistry, research and gas production techniques.

The Conference will comprise two morning and one afternoon general sessions under sponsorship of the Gas Production and Chemical Committees. Parallel sessions for each group will be held on two afternoons, with luncheon conferences featuring outstanding speakers. H. C. Jones, New England Power Service Co., Boston, chairman, Gas Production Committee, and Dr. F. E. Vandaveer, The East Ohio Gas Co., Cleveland, chairman, Chemical Committee, will alternate as presiding officers.

H. Carl Wolf, managing director, A.G.A. will outline the work of the Association at the morning session on Monday. Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and first vice-president, A.G.A., will discuss the A.G.A. Promotion, Research and Advertising Plan.

E. S. Pettyjohn, director, Institute of Gas Technology, will speak on the potential use of catalytic and thermal hydrocarbon cracking, a research project of the utmost interest to the industry. A panel discussion will review present day high B.t.u. production methods. Those attending will be brought up to date on new gas-making methods developed under the industry's coordinated research plan that already have effected savings in fuel costs and increases in thermal capacities of existing manufactured gas apparatus.

Several pertinent topics are listed for discussion at the luncheon conferences, with competent authorities on each of the subjects serving as chairmen and vice-chairmen. Carbonization and coke, gas industry chemistry and high B.t.u. gas are among the listed topics. At the Chemistry Industry luncheon, Dr. Kenneth H. Kingdon, Knolls Atomic Power Laboratory for General Electric Company, will speak on nuclear energy developments.

Frank P. Mueller, The Peoples Gas Light & Coke Co., Chicago, will describe the effect of oxygen in gas upon distribution systems. Speakers from the Bureau of Mines will present the possibilities of utility gas as a product of synthetic fuel production and will also discuss natural gas hydrates.

Natural gas standby methods and reforming of natural gas will be covered, as well as problems of interest to the LP-gas industry. Luncheon conferences, where topics such as water gas operation, LP-gas and the application of oxygen to gas making will be discussed, are also scheduled. Accident prevention, supervisory training and equipment developments will be handled by authoritative speakers.

## CONVENTION CALENDAR

**May**

9–10 *A.G.A. Natural Gas Dept. Spring Meeting,* French Lick Springs, Indiana.

9–11 *Liquefied Petroleum Gas Assn.* Annual Convention and Trade Show, Palmer House, Chicago.

9–13 *AGA Industrial Gas School,* Hotel Severin, Indianapolis, Ind.

17–19 *Pennsylvania Gas Assn.* Annual Convention, Galen Hall, Wernersville, Pa.

20 *New Jersey Utilities Assn.* Spring Meeting, Seaview Country Club, Absecon, N. J.

23–25 *AGA Production & Chemical Conference,* Hotel New Yorker, New York, N. Y.

24–27 *National Restaurant Exposition,* Atlantic City, N. J.

26–27 *The Natural Gas & Petroleum Assn. of Canada Annual Meeting,* Hotel London, London, Ont.

30 to June 1 *Fourth Annual Short Course in Gas Technology,* Kingsville, Texas.

**June**

13–14 *The Institution of Gas Engineers,* London, England.

16–20 *Canadian Gas Assn.* Annual Convention, Bigwin Inn, Lake of Bays, Ontario.

20–21 *New York-New Jersey Regional Gas Sales Conference,* Essex & Sussex Hotel, Spring Lake, New Jersey.

24–25 *Michigan Gas Assn.* Annual Convention, Grand Hotel, Mackinac Island, Mich.

**September**

9 *New Jersey Gas Assn.,* Monmouth Hotel, Spring Lake, N. J.

19–21 *National Butane - Propane Assn.,* St. Louis, Mo.

**October**

11–14 *American Standards Assn.* Annual Meeting, Waldorf-Astoria, New York.

13–14 *Texas Mid-Continent Oil & Gas Assn.,* Annual Meeting, Rice Hotel, Houston, Texas.

17–20 *American Gas Assn.,* Annual Convention, Chicago, Ill.

## Liquid Petroleum Gas Assn. Annual Convention, Chicago

Representatives of the fast-growing LP-Gas industry will convene in Chicago for the annual convention and trade show of the Liquefied Petroleum Gas Association at the Palmer House, May 9-10-11.

Everyone in the LP-Gas business, whether a member of the LPGA or not, is cordially invited to attend, according to Howard D. White, executive vice-president.

The convention program will feature addresses by nationally prominent authorities from inside and outside the gas business and open forums for the informal discussion of mutual problems. Well over 100 exhibits showing the newest LP-Gas systems, appliances, regulation equipment and related devices will be displayed in the Palmer House exposition hall.

## Fourth Annual Short Course at Texas A. & I. College

Engineers from seven states will be instructors at the Fourth Annual Short Course in Gas Technology at Texas A&I College May 30, 31, and June 1.

Sponsored by the Southern Gas Association, the course brings each year about 200 industrialists and engineers to the A&I campus. Represented on the instructional staff will be Texas, Louisiana, Indiana, New York, Oklahoma, California, and Illinois.

Gas conservation practices and the growing importance of gas technology will be stressed, according to Dr. Frank H. Dotterweich, administrative committee chairman. Director of the A&I Engineering Division, Dr. Dotterweich has been administrative chairman for all four courses. C. R. Williams of the Chicago Corp., Corpus Christi, is chairman of an advisory committee of industrialists.

Two sections of study will be offered—"Latest Methods of Solving Important Problems of Production and Transmission" and "Improved Techniques in the Utilization of Natural Gas." In addition there will be general assemblies, a banquet, a barbecue and trip to the King Ranch, and field trips to gas installations in the vicinity, including those of the Celanese Plant and of the Chicago Corp.

Appearing on the production and transmission program will be Dr. Joseph Parent, Institute of Gas Technology, Chicago; J. A. Rossitter, The Thermix Corp., Houston; B. T. Mast, Tennessee Gas Transmission Co., Houston; D. T. McDonald, Magnolia Petroleum Co., Dallas; Jack Talbot, Dowell Inc., Alice; Dr. D. A. Shock, University of Texas, Austin; J. Paul Sloan, Gulf Oil Corp., Houston; and Robert M. Hutchinson, Houston Natural Gas Corp., Houston.

## Gas Appliance Sales Increase in Vancouver B.C.

Sales of gas appliances in the Greater Vancouver area during December, 1948, reached a total valuation of $44,341. Appliances as a whole during the year 1948 reached a sales volume in considerable excess of 1947, particularly in automatic storage water heaters.

## Slide Rule Sells L. P. Gas

Introduction of a potent new selling tool that points up the economy of LP-gas for cooking and water heating has been announced by Howard D. White, executive vice-president of the Liquefied Petroleum Gas Association. The Perrygraf, as the device is known, is a simplified slide-rule that permits the prospect to see at a glance comparable costs of LP-gas and electricity.

Printed on the rule are two parallel graduated scales, one showing the price of LP-gas per pound and per gallon the other indicating the cost of electricity per kilowatthour. The LP-gas salesman just sets the slide at the price of gas in his territory and a pointer on the adjacent scale automatically indicates the rate per kilowatthour at which electricity would have to be sold to compete.

One side of the Perrygraf is devoted to cooking, the other to water heating. The comparative cost figures are based on statistics released by the United States Department of Agriculture.

Three inches wide and 7 long, the new selling aid can be conveniently carried in the salesman's pocket. It is made of heavily lacquered cardboard to withstand long service.

Sold to members of the Liquefied Petroleum Gas Association at cost, it is available to others in the LP-gas industry at slightly higher prices. Orders are being received at the organization's executive offices, 11 S. LaSalle St., Chicago.

## Range Sales in Pittsburgh Area Reach Top Figures

The sale of 61,450 gas ranges in the Tri-State area during 1948 not only tops the 1946 and 1947 sales records, but also provides a total of more than 171,000 modern gas ranges installed in this area since the close of World War II.

According to the Gas Appliance Promotion Division, Pittsburgh, who coordinates pertinent sales figures, about 11 per cent of gas company customers are buying new gas ranges each year.

A spokesman for the Division said that this rate of purchase for new gas ranges means that nearly one out of every three customers of a gas company in the Tri-State area is now cooking on a modern gas range built since the close of the war.

## Washington Gas Light Company Elects New Officers

Everett J. Boothby, vice president and general manager of the Washington Gas Light Company since 1932, was elected president, March 30. At the same time, Howard B. Noyes, formerly general superintendent, was named vice president. Re-elected were Robert C. Owers, vice president and treasurer; Otis H. Ritenour, comptroller; Carroll C. Pike, assistant comptroller; Wylie W. Barrow, A. Gray Dawson, and Frank R. Holt, assistant treasurers; Edward T. Stafford, secretary.

Everett J. Boothby

Prior to his affiliation with the Washington Gas Light Company, Mr. Boothby had been associated with several large public utilities and had engaged in private manufacturing. He was president of the American Gas Association, 1946.

Mr. Noyes from 1927 to 1938 was employed as gas engineer at the Philadelphia Electric Company. From 1938 to 1940 he was manager and treasurer of Manchester Gas Company. He has been general superintendent of the Washington company since 1940.

## Gas Industry Foresees High Levels in Sales of Fuels and Appliances

The gas industry, under the impetus of coordinated advertising and promotional programs similar to the intensive campaigns that lifted sales of gas and gas appliances to new record levels in 1948, expects in 1949 to exceed substantially its best pre-war sales records, H. Carl Wolf, Managing Director, American Gas Association, reports.

Gas utility companies are most optimistic in their 1949 business forecasts, Mr. Wolf declared. The Association has just completed a survey of representative gas utilities comprised of large, medium and small companies in the natural, manufactured and mixed branches from each geographic region in the country.

A number of the companies surveyed expect to equal or surpass last year's sales in 1949. Most of the remaining companies estimated sales of all appliances would be only 5 per cent to 10 per cent under 1948, which was an all-time peak year. Pent-up demands, improved post-war appliances, and coordinated promotional effort throughout the gas industry achieved last year's records.

Two major campaigns under the A.G.A. Promotion, Advertising and Research (PAR) Plan have been launched this year. The "Court of Flame" program sponsored by the Water Heater Division of the Gas Appliance Manufacturers and supported by national advertising and promotional efforts of A.G.A., appreciably has stimulated sales of automatic gas water heaters in the first quarter of 1949. Gas utility companies and appliance dealers have augmented the national advertising of A.G.A., GAMA and the 23 participating gas water heater manufacturers, at the local level, to achieve an unprecedented volume of promotion for automatic gas water heaters in magazines, newspapers, radio and point of sale channels. A.G.A. is spending $110,000 in national advertising, gas water heater manufacturers will spend $450,000 and local advertising of gas utility companies and dealers, will bring total expenditures to more than a million dollars.

A new dealer-promotion effort to increase sales of all types of domestic gas ranges was launched recently. This campaign already has enlisted the enthusiastic support of the gas utility companies and dealers throughout the nation. Approximately 15,000 dealer portfolios presenting a complete sales campaign have been placed in the hands of dealers by utility companies and appliance manufacturers. Dealer meetings now are being held in many parts of the country, where profit opportunities in the vast replacement and new home markets are being graphically presented to dealers.

The gas industry recognizes the advent of a balanced market where supply and demand are in equality. Sales forces either have been or are being augmented to pre-war strength in most gas utility companies. Sales training programs again form a necessary part of the gas industry's sales plans. The gas companies are confident that a return to intensive selling methods will keep the gas industry in its dominant position in home and industrial fields.

## Lightweight Propane Cylinders

Mass production of a new lightweight, high-strength propane cylinder of 100-pound capacity and tare weight of 72 pounds has been announced by Harrisburg Steel Corp., Harrisburg, Pa.

The cylinders (trade name "Lite-Weight") are made of special high tensile strength alloy steel to I.C.C. specification 4BA-240. They are supplied with or without pressed steel caps, with valve inserted if the customer desires.

## New Koven Manufacturing Plant

L. O. Koven & Brother, Inc., Jersey City, N. J., manufacturers of boilers, tanks, special process equipment and weldments, announces the purchase of the facilities and assets of the D. W. Whitehead Manufacturing Company in Trenton, N. J.

A new production line for the manufacture of Gas Water Heaters, recently approved by the American Gas Association, will be placed in operation in the next few months. Tanks and pressed steel parts for all heaters will be fabricated in the Koven Dover and Jersey City plants.


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Pleasingly round, slightly ornamental, low contour are features of the REX "XL" Automatic Water Heater.

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SAFE TO USE: A safety pilot that cuts-off all gas supply to the burner and pilot, and a Temperature and Pressure Relief Valve make the REX "XL" safe to use in any home.

BUILT TO LAST: Sturdy construction, a heavy, tested storage tank, "Elno" protected add to the life of this water heater.

EASY TO INSTALL: Its low compact design facilitates installation.

**Available in 6 sizes**

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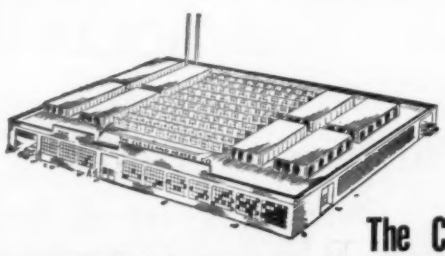

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## Natural Gas in Southern Wisconsin

Natural gas has been distributed in a small southern section of Wisconsin for about two years. The area is located in the extreme southern part, adjacent to the Illinois state line, from which the supply of natural gas is received. The pipe line coming from Illinois into Wisconsin is not of sufficient size to serve much of the state, as it is only a 4" line, as against a 22" line which is to bring natural gas from the Hansford fields in Texas. (See March issue page 11.)

The small line coming into Wisconsin, which has been serving a limited area in the southern part of the state, comes into Wisconsin at the Illinois state line about 1½ miles west of Genoa City, Wisconsin, at which point it connects to the 4" pipe line of the Wisconsin Southern Gas Company. The main line from the south is that of the Natural Gas Pipe Line of America.

Although adjustments of burners, etc., had to be made when natural gas was distributed by the Wisconsin Southern Gas Company, there was little complaint regarding the service after the change-over, according to vice president Carl A. Altenbern at Burlington. The customers like it better than they did manufactured gas. The natural gas B.t.u. is 1025 to 1040. No L.P. gas installations were changed over, Altenbern says, as such installations appear only in outlying districts, away from the company's mains.

The new 22" pipe line coming into Wisconsin is not expected to serve the area now served by the Wisconsin Southern Gas Company, as the entry points for the two pipe lines are miles apart. Wisconsin Southern Gas Co., Burlington, Wis., received power commission permission to buy a 25 mile pipe line from Pleasant Prairie to Genoa City, Wis. It is owned by the Wisconsin Gas & Electric Co.

Wisconsin Southern also was authorized to build a 1.65 mile connecting line from Genoa City to the transmission facilities of the Natural Gas Pipeline Co.

The purchase price of the Genoa City line is $18,000 plus the cost of additions since Dec. 1, 1946. Estimated cost of the connecting line is $30,000. Natural Gas Pipeline will spend an estimated $20,000 for connecting with the new line.

## Low Cost Oxygen Produced Commercially in Texas

The first low cost oxygen plant of commercially substantial tonnage output to be built for the petro-chemical industries has successfully passed initial test runs, according to Eric A. Flaschar, general manager of The Stacey-Dresser Engineering Division of Dresser Industries, Inc.

Installed in Winshire, Texas, as part of a petro-chemical plant recently completed by the McCarthy Chemical Company, the new oxygen unit is now producing more than the design quantity of 175 tons (4,200,000 cu. ft.) per day of 90-95 per cent pure oxygen which is delivered at 800 psig.

"Dresser Industries, through their Pacific Pumps, Inc., Clark Bros. Co., Inc., The Stacey Bros. Gas Construction Company and Stacey-Dresser Engineering Division, pooled their design, engineering and manufacturing talents and facilities in the development of this new oxygen unit," Mr. Flascher said.

An outstanding feature of this process is a low-pressure, self-contained cycle, a far-reaching improvement over the original German process which required up to 10 per cent high pressure chemically purified air. This accomplishment, long sought by German engineers for their synthetic fuel industries, has remained for American engineering and manufacturing ingenuity to achieve and put into large scale industrial practice.

The new system requires no chemicals, using only cooling water and a source of fuel gas. Air is merely compressed to 85 pounds, cooled by expansion and self-refrigeration, and the $CO_2$ and other impurities removed by depositing them on special aluminum fin-tube exchangers, separating the oxygen from the nitrogen in Stacey-Dresser aluminum fractionating columns.

Commenting on the new plant, the first to produce low-cost oxygen in commercial quantities, Mr. Flaschar, who supervised the design and construction of the unit, said:

"The original design and sizing of the special equipment for the process has been ultra-conservative and in future installations will permit even a lower first-cost for similar projects. Designs are now on the boards for larger units capable of producing much greater volumes of oxygen."

Completely safe in operation, without danger of explosions or pollution of the atmosphere, the new plant requires little supervision. There are no waste chemicals to eliminate and operating expense is confined largely to the cost of the fuel gas.

## New Oxygen Process Successfully Tested

A new process for producing low cost oxygen from air has been successfully tested commercially for the first time, it was stated recently by P. C. Keith president of Hydrocarbon Research, Inc., perfectors of the process.

Mr. Keith said that startup runs have been completed at the first plant to use the method—Glen McCarthy's Chemical Company at Winnie, Texas. The plant has been producing in excess of 200 gross tons per day of 90% oxygen for the synthesis of methanol, formaldehyde, and other petrochemicals.

In large quantities, the process can make oxygen available for such industrial uses as steelmaking, synthetic fuel production, and many chemical processes for a cost as low as $3.50 a ton. However, costs at the McCarthy operation may run somewhat higher than this figure.

While this is presently the world's largest, single commercial installation, it will be dwarfed by a second plant utilizing the Hydrocarbon Research process which will be operating later this year with a capacity of 2000 tons per day of oxygen. It is being built for the Carthage Hydrocol Corp., Brownsville, Texas.

## Tinker Named Branch Manager National Radiator Co.

Alex K. Tinker has been named manager of the New York branch sales office of The National Radiator Co., Johnstown, Pa., and Fred S. Hudson succeeds him as Pittsburgh branch manager.

In announcing this change in sales representation, Carroll M. Baumgardner, vice president for sales, said that Mr. Tinker had been Pittsburgh manager since 1931 and Mr. Hudson had been a sales engineer since 1936 in the company's Richmond and Washington branch offices.


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Purifiers Tanks Flues
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### Bryant Heater Div. Appoints Seltzer Production Manager

Richard J. Seltzer has been appointed Production Manager for all plants of the Bryant Heater Division, Affiliated Gas Equipment, Inc., it has been announced in Cleveland by Lyle C. Harvey, General Manager.

R. J. Seltzer

Bryant Heater Division of A.G.E., Inc., operates two factories in Cleveland and one in Tyler, Texas, for the manufacture of gas-fired hot water and heating equipment.

Seltzer has been associated with Bryant since May, 1948, serving in an advisory capacity at the Tyler plant.

Previously Seltzer was with Rheem Manufacturing Co., having served since 1938 in various capacities at Los Angeles, Chicago, Baltimore and Providence.

### Rockwell Mfg. Co. Appoints Bygate Asst. V. Pres.

L. A. Dixon, Vice President of the Rockwell Manufacturing Company's meter and valve divisions has announced the appointment of C. S. Bygate as Aassistant Vice President.

Mr. Bygate joined Rockwell in 1943, starting in the Company's Pittsburgh Equitable Meter Division and was later transferred to General Purchasing. Here, he devoted his efforts to correlating the buying habits of Rockwell's 17 divisions and subsidiaries.

### Dingwell Now in Personnel and Labor Relations

James D. Dingwell, Jr., who for the past sixteen yars has been associatd with the Washington Gas Light Company, resigned in April. He will establish himself as consultant on Personnel Policies and Labor Relations Problems with headquarters in Washington, D. C.

Mr. Dingwell was made assistant vice president in charge of personnel relations, July 1, 1937. In this capacity he was charged with the responsibility of creating a personnel department and guiding the policies of the Company in matters of personnel relations—i.e., selection, transfers, promotions, medical care, and personnel counselling.

As director of personnel he was key man in dealing with the several unions operating in the Washington Gas Light Company and subsidiaries for bargaining, negotiation and interpretation of all collective bargaining contracts.

From 1938 to 1942 Mr. Dingwell was chairman of the American Gas Association Personnel Committee.

### Conover Retires After 41 Years' Continuous Service

John L. Conover, who has been general commercial manager, Public Service Electric and Gas Company of New Jersey since 1940, retired on pension in April after more than forty-one years' continuous service with the company.

Mr. Conover started with Public Service as a clerk in the comptroller's office in March 1904. Later he became a meter reader and collector in the Newark Commercial Office and held several positions in that office until March 1908, when he was transferred to the comptroller's department as chief clerk. He became auditor, Gas Department, in May 1914; assistant general auditor, Gas Department, in July 1933, and general auditor, Gas Department, in January 1937.

The American Gas Association Charles A. Munroe Award was presented Mr. Conover in 1930 "for the most outstanding contribution during the year in the general interest of the gas industry" for his accomplishments in the field of machine accounting.

### Dr. W. E. Hanford Elected V. P., M. W. Kellogg Co.

Importance of the development work of The M. W. Kellogg Company has prompted H. R. Austin, president, to announce that Dr. W. E. Hanford, Director of Petroleum and Chemical Research, had been elected a Vice-President of the company. Dr. Hanford, scientist, who has been nationally prominnt in many fields of research, joined the Kellogg organization in October, 1946. He was appointed to the newly created post of Director of Petroleum and Chemical Research at Kellogg in January 1948.

### Research Corp. to Build Plant Near Bound Brook, N. J.

Dr. Joseph W. Barker, president of the Research Corporation, 405 Lexington Ave., New York, has announced that the Corporation will build a new manufacturing plant just outside Bound Brook, N. J. It will house under one roof operations now being carried on in three diffrent locations in and around Bound Brook.


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## Gas Exhibits Featured at Western Metal Congress

The gas industry was substantially represented at the 6th Western Metal Congress and Exposition held at Los Angeles April 11 to 15th, with the Pacific Coast Gas Association serving as one of the sponsors along with the western divisions of 17 other technical societies.

The technical conference consisted of the presentation of 72 technical papers on a wide variety of subjects pertinent to the metals field and its processing, fabrication and designing. Due to the large scope of the congress, separate technical sessions were held by the various groups which collaborated in the sponsorship. Separate meetings were held by such organizations as the American Welding Society, American Society for Metals, American Foundrymen's Association, Society for Non-Corrosive Testing, American Institution of Mining & Metallurgy, and others.

A Metals Exposition held in Shrine Auditorium featured in excess of 200 exhibits. To avoid conflict in time, technical meetings, in the main, were held in the mornings in order that visitors could attend the exposition in the afternoons and evenings.

Gas industry representatives attending exhibit booths included Clifford Johnstone, San Francisco, Managing Director, and J. S. Kern, Los Angeles, assistant manager, of the Pacific Coast Gas Association; Herbert Nash, general superintendent of sales, Southern California Gas Co.; C. L Ferry, industrial engineer, Southern Counties Gas Co., as well as members of the sales staffs of both utility firms.

The Natural Gas Bureau of Los Angeles sponsored an exhibit stressing institutional phases of the use of gas. Shown in this booth was an automatic slide machine showing colored pictures of natural gas burning equipment used in the metal industry. In attendance were R. B. Grossman, manager of the industrial and commercial gas division of Southern California Gas Co., who served also as general chairman of the exhibits committee of the Congress. He was assisted at the Natural Gas Bureau booth by a staff representing Southern California Gas Co. and Southern Counties Gas Co. as well as the PCGA.

Natural Gas Equipment Co. of Los Angeles displayed a cutaway model of a Surface Combustion Corp. tunnel, with an oil standby, and a series of photographs of other installations, such as a galvanizing kettle, heat treating furnace, paint and process drying oven.

In attendance at this display were the Los Angeles and San Francisco staffs of the company, headed by J. A. Monax of Los Angeles, and C. K. Benson of San Francisco.

The Partlow Corporation, New Hartford, N. Y., exhibited automatic gas throttling control valves in operation, as well as indicating and recording temperature controllers, dial thermometers and safety pilots.

Attending from the main office in New Hartford were President Howard Partlow, Jr.; engineer Charles W. Pflieger; and sales manager, Wayne A. McGrew.

## Estate Stove Company Names Deininger Eastern Div. Mgr.

Appointment of Frederic A. (Fritz) Deininger, as Eastern Division Manager, has been announced by Gordon P. Hentz, General Sales Manager of The Estate Stove Company, Hamilton, Ohio.

F. A. Deininger

The new Eastern Division is a consolidation of the former New England, Eastern and Atlantic Divisions. It consists of all of New England, Eastern New York, Eastern Pennsylvania and the Atlantic Seaboard as far south as North Carolina. In his expanded capacity, Mr. Deininger will supervise the activities of nine Estate District Representatives covering these areas.

He has been associated with Estate since 1925. From 1942 to 1946, he was Government Contact Representative for the industry with the Institute of Cooking and Heating Appliance Manufacturers, Washington, D. C. Since that time, and up to his new appointment, he has been Division Manager of Estate's Atlantic Division.

## R. J. Bond New President Walker-Pratt Mfg. Co.

Appointment of Robert J. Bond to the presidency of the Walker-Pratt Manufacturing Company, Watertown, Mass., a subsidiary of Kalamazoo Stove and Furnace Company, is announced by Arthur L. Blakeslee, Kalamazoo president. Mr. Bond succeeds John E. Wykoff, who resigned recently.

Walker-Pratt's line of Crawford ranges, which have heretofore been distributed only in the North Eastern states, will now be distributed nationally through franchise dealers, according to Mr. Bond. New franchises are now being granted. A complete new line of gas, electric and combination ranges has been designed.

## Texas Eastern Transmission Reports on Progress

Texas Eastern Transmission Corporation has stated in its second annual report to stockholders, that approximately $23,800,000 was spent during 1948 on construction, involving the laying of pipe line extensions, building of compressor stations, measuring and regulating stations, and other facilities. The company's authorized expansion program calling for a system capacity of 508 million cubic feet of natural gas per day was rapidly approaching completion at the end of the year, R. H. Hargrove, President of the company, reported and as a result deliveries averaged approximately 436 million cubic feet of gas per day for the month of December, 1948, as compared with approximately 230 million cubic feet per day for December, 1947.

In January of 1949 the company began a large scale program to provide additional housing for its employees at various compressor station sites along the line where no other housing is available.

## Consumers Power Company Reports

In the annual report of Consumers Power Company for 1948 Justin R. Whiting, President, gives the 1948 construction program as totaling over $48,000,000, the largest in the company's history. Included was furtherance of a subsidiary company's project of storing natural gas from the Texas-Oklahoma-Kansas fields in Michigan gas fields during periods of lower customer consumption, for use in winter months of peak demand.

The necessity for a general upward revision of electric and gas rate schedules was cited by Mr. Whiting as a result of increased wage rates and increased cost of materials and supplies, insurance and coal. Applications for authority to make such increases are now before the Michigan Public Service Commission.

Gas sales were higher than ever before—20,400,000,000 cu. ft.—a 1.9% gain.

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THE REPUBLIC *Self-Cleaning* DUO-WAY

Here is the convenient and practical disposal unit with the revolutionary 2 ZONE principle that everyone is talking about.

Because this amazing appliance has not just one, but TWO big zones (one designed specifically for drying and the other for burning) it not only completely eliminates wet garbage and other waste matter easily, economically and without offensive odor, but *automatically cleans itself as well.* A.G.A. APPROVED.

*Additional Information Available Upon Request*

AUTOGAS COMPANY 2151 W. Fullerton Ave., Chicago 47, Illinois

## Allen MacLean Joins Chaplin-Fulton Company

Allen D. MacLean has become Chief Engineer of the Chaplin-Fulton Manufacturing Company, manufacturers of valves and pressure regulators. His previous connection was with the H. K. Porter Company, in charge of the pump division and more recently of the valve division of that company, with headquarters in Pittsburgh. For twenty years, up to 1945, he was with the Pittsburgh Equitable Meter Company, advancing to the position of Vice President and Chief Engineer.

Allen D. MacLean

For a three-year period ending in 1945, on leave from the Pittsburgh Equitable Meter Company, Mr. MacLean was in important Government service and in 1944-45 was Director of Production of the U. S. Maritime Commission. His acquaintance in several branches of industry is very extensive.

Many of our readers may recall his series of articles published in this journal during 1936, '37 and '38 on gas transmission, pressure regulation, diaphragm meters and the physics of liquids and gases.

## A. D. Simpson Elected to Tenn. Transmission Board

A. Dee Simpson, vice-chairman of the board of the National Bank of Commerce, Houston, Texas, has been elected a director of the Tennessee Gas Transmission Company, to succeed Hervey M. Amsler, who died early in April. Mr. Simpson is a former president of the Houston Chamber of Commerce, and is prominent in civic affairs.

## Lovett Resigns as President of Milwaukee Company

J. A. B. Lovett, President of the Milwaukee Gas Light Company and of the Milwaukee Solvay Coke Company, has resigned from both positions. Letters of resignation were forwarded from Winter Park, Florida, where Mr. Lovett has been living since he was overtaken by serious illness on January 25.

Mr. Lovett became President of the Milwaukee Solvay Coke Company in 1939. He came from Hamilton, Ohio, where he was with the American Rolling Mill Company. Before this he had been associated with the Koppers Company.

He became Executive Vice-President of the Milwaukee Gas Light Company in 1947 and President in February 1948.

No elections have been held to fill the presidential vacancies. In the meantime, Glenn R. Chamberlain, Executive Vice-president of these companies since February 7, 1949, who directly represents the interests of American Light & Traction Company which is the parent company of the Milwaukee Gas Light Company, will continue in that office.

Louis Kreuz, of the Michigan Consolidated Gas Company, Detroit, Mich., also affiliated with American Light & Traction, has been elected Vice-president and general manager and a director of the Milwaukee Solvay Coke Company.

## Wilputte Awarded Contract For Coke Oven Battery Extensions

Great Lakes Steel Corporation at Ecorse, Detroit, Michigan, is adding eight ovens each to Batteries Nos. 1 and 2 of the Semet-Solvay Vertical Flue ovens built in 1938. The extended batteries will then have 73 ovens each. The contract for the sixteen additional ovens has been placed with the Wilputte Coke Oven Division of Allied Chemical & Dye Corporation.

## Girdler to Build Sulphur Recovery Plant

The Girdler Corp., of Louisville, will build a 40 ton/day sulphur recovery plant for the Freeport Sulphur Company. This plant will produce elemental sulphur from hydrogen sulfide contained in waste gases from several process units of The Texas Company's refinery at Westville, N. J.

Primary purpose of the recovery plant, to be located within the refinery limits but owned and operated by Freeport Sulphur, is to minimize atmospheric pollution with sulphur-bearing gases. However, the unit will also produce a commercial product by a new process.


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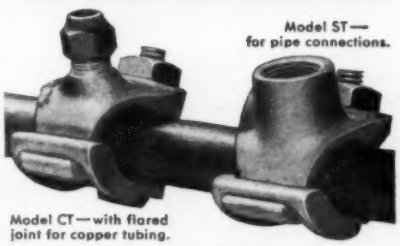


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**High Pressure**
RANGE:
Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe—Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in., 1-500
Sum of Absolute Pressures—Lbs. per sq. in., 2000-20
Specific Gravity—1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

**Low Pressure**
RANGE:
Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter—¾" to 48" (including standard and actual weight up to 4")
Pressure Loss—Inches .01-10
Length of Pipe—Feet 30-30,000
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Made of durable plastic, encased in a convenient leatherette cover with complete instructions. Actual size 6¼ x 7½

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53 Park Place, New York 17

### Lincoln Electric Trains Men For Field Service Shops

Four corners of the United States were represented at one of the field service training schools recently conducted at the plant of The Lincoln Electric Company in Cleveland, O. The schools have been conducted twice a month for the last year by The Lincoln Electric Company to train men sent in by newly authorized Field Service Shops. These men are given a thorough grounding by engineers and factory personnel in the principles of construction and operation of all types of welding machines and are taught how to service and repair them.

The picture shows Mr. James F. Lincoln, president of The Lincoln Electric Company, greeting Curtis Johnson of Portland, Ore., A. McGlinsey of Kalamazoo, Mich., Norman Sharp of Miami, Fla., and J. R. Horton of Phoenix, Ariz. The total number of authorized Field Service Shops now servicing Lincoln equipment is well over the hundred mark.

### Employee Relations Conference

On May 23, at Baker Hotel, Dallas, sponsored by V. H. Luneborg, Personnel Manager, Arkansas, Louisiana Gas Company, will be the first round table conference authorized by the new S.G.A. Employee Relations Section.

The practice of informal round table discussions on employee relations matters will be continued on a basis similar to that of the former A.G.A. Southwest Personnel Conference.

Those attending this conference should have primary responsibility for employee relations and should be able to speak authoritatively regarding personnel practices and policies.

The discussion at this conference will deal primarily with specific problems of employee relations which those in attendance have an immediate and practical interest. The discussion will be informal and there will be no prepared papers. All attending will have the opportunity of exchanging opinions around the round table with representatives from other companies.

### Laclede Gas Light Company Reelects Directors

The annual meeting of the stockholders of The Laclede Gas Light Company for the election of directors was held April 20th. Approximately 73.6% of the shares were represented at the meeting.

The following directors, constituting the present Board, were elected for the ensuing year: L. Wade Childress, Morris E. Feiwell, Russell E. Gardner, Jr., Hord Hardin, Andrew W. Johnson, Robert W. Otto, E. E. Pershall, A. Wessel Shapleigh and Joseph A. Thomas.

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### Water Heater Portfolio is Issued by Servel Inc.

A new sales portfolio on the complete line of Servel Water Heaters was released this week by R. J. Canniff, Advertising and Sales Promotion Manager.

Offering a complete sales and promotion plan for Servel's Water Heater line, it features the Servel Mainliner which is the ball type tank gas water heater; the Highliner which is the upright medium priced fast recovery and the Headliner which is Servel's entry in the lowest priced field.

"In this portfolio we are offering," Mr. Caniff said, "a new complete 5-step promotion plan geared to help utilities and gas appliance dealers sell every water heater prospect."

It includes a comprehensive course of sales training on the full line of Servel Water Heaters, a well integrated local advertising program offering mats for newspaper advertising and spot announcements for use in radio, and a dramatic series of window and floor displays which are designed to increase show room traffic and prospect interest. Also a full group of printed materials for consumer, commercial and building industry distribution directed to pre-sell every prospect with printed selling.

The new promotion campaign is designed to tie-in to Gas Appliance Manufacturers Association "Court of Flame" sales contest.

### Ceramic Surface Plate For Precision Setups

An entirely new ceramic surface plate was released for general sale April 1 by Norton Company of Worcester, Mass.

Designed for use in toolrooms and inspection departments where precision setups and checking measurements require the highest degree of accuracy, this plate affords three distinct advantages: extreme wear-resistance, a precisely flat surface guaranteed to be within .0001" (one ten thousandths of an inch), and a continuously smooth surface finish.

This new Norton ceramic surface plate is made of one of the hardest substances known. A laboratory test recently completed shows the Norton plate life to be at least 40 times longer than the best competing type. Exhaustive field trials conducted on this plate reveal an almost complete absence of wear either to the plate itself or to gages and instruments used on it.

These same field trials have shown that the plate will not warp or deform, give expansion troubles, or deflect under load. Its smooth semi-glossy surface is neither slippery nor sticky and has been proven ideal for blueing.

The precise flatness combined with the unusual smoothness of this ceramic surface plate shortens the time required to take readings on an indicator. Likewise, its accuracy permits exact duplication of readings.

The newly developed plate is non-magnetic. It will not sweat or corrode under any atmospheric condition, and it may be cleaned easily with soap powder and water.

### Public Service Co. Announces Changes in Commercial Staff

Changes in organization in the commercial department of Public Service Electric and Gas Company, Newark, N. J., effective April 11th, were announced, as follows, by President George H. Blake:

Herbert E. Cliff, from Assistant General Commercial Manager to General Commercial Manager, replacing John L. Conover, retired.

Gordon M. Peterson, from Assistant to the General Commercial Manager to Assistant General Commercial Manager.

Louis R. Quad, from Division Commercial Manager, Central Division, to Assistant General Commercial Manager.

Mr. Cliff started with Public Service as a commercial cadet in 1924 and was appointed assistant general commercial manager in 1940, which position he held until his present appointment.

Mr. Peterson started with Public Service as a commercial cadet in 1925 and in 1940, was appointed assistant to the general commercial manager, the position he held until his present appointment.

Mr. Quad entered the employ of Public Service as a commercial cadet in 1926. His appointment as division commercial manager, Central Division, became effective January 21, 1946.


THE NEW LOOK for THE MIGHTY MIDGET

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The MIGHTY MIDGET reduces the cost of breaking asphalt and concrete to a minimum cost that is unequalled by other methods. Tamps backfill at an unbelievable pace; gives high density. All controls within operator's reach. Operates on 105 C.F.M. compressor.

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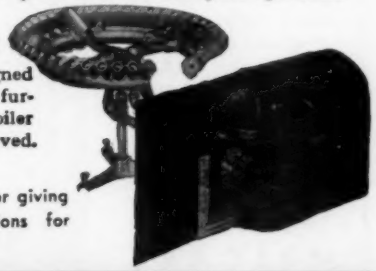

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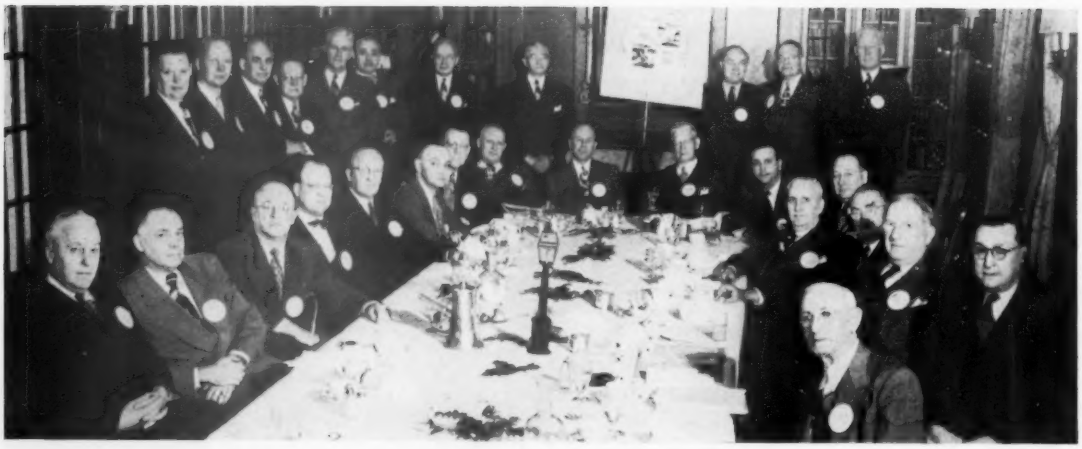

Gild of Ancient Supplers breakfast on March 24, Stattler Hotel, Boston, during the New England Gas Association Annual Business Conference.

Seated left to right clockwise are: Bud Ackerman, Geo. Copeland, Bill Marsh, Tommy Downs, Leigh Whitelaw, Harold Andrew, Jim Gibbons, Geo. Steere, Homer Dufault, Arthur Norton, Ferdie Arens, Bill McCoughlin, Joe Harper, Jim Moore, John Eigenbrot, Malcolm Scott, A. Jenkins.

Standing left to right: Bill Foster, Barnett Fairchild, Carl Schlegle, Ward Cheeseman, Alec Wolff, Tom Gilbert, Ike Rawson, Geo. Velte—Alderman, Joe Mulcare—Mayor, Joe Messenger—Alderman, Rusty Wright—Warden.

## J. K. Roberts Elected President at Florida-Georgia Annual Meeting

James K. Roberts, vice-president of Florida Public Utilities Co., West Palm Beach, was elected President of the Gas Meters Association of Florida-Georgia, at the organization's 14th annual meeting held at St. Augustine April 10 to 12. Attendance was estimated at 275.

The program included major speeches and reports on subjects of topical interest to members, and reached its climax the evening of the 12th with the Association's annual banquet.

In accordance with the custom of the organization, the retiring president, Clifford J. Noda, of St. Augustine, was elected vice-president of the Association. John W. Owen, of Winter Haven, was re-elected secretary-treasurer. Joe Frink, of Florida Power and Light, and Robert Gresimer, of Jacksonville Gas Corp., were elected to the board of directors.

H. Hansell Hillyer, president, South Atlantic Gas Co., Savannah, called for aggressive action to bring about the construction of additional natural gas pipe lines to serve the south Georgia-Florida area.

"Last year the Federal Power Commission authorized 8,500 miles of new gas pipe lines," Mr. Hillyer said, "but not one foot of it was authorized for the south Georgia-Florida area which is relatively close to the gas fields and needs natural gas so acutely for industrial development."

"My investigations convince me that the delay in building pipe lines to our section is now caused by the Federal Power Commission," the speaker asserted. He stated that his company was scheduled to intervene at hearings before the F. P. C. in May when pipe line authorizations for the southeast will be considered.

"There is no basic industry in America today that faces a brighter future than the gas business," Mr. Hillyer said. "While the economic cycle seems to be turning from its period of war and postwar inflation with resulting slackening demand for many products. the gas industry continues to be confronted with the problem of meeting increasing demands."

Leo H. East, of Rocrester, N. Y., presented a comprehensive paper on the outlook for the manufactured gas industry. He said that "the use of natural gas as an enricher will be a most important factor in improving the financial condition of many companies," and that companies unable to secure natural gas can be encouraged by such developments as the high Btu heavy oil process, catalytic cracking, etc.

Other important speeches at the convention were:

"Sales Promotion and Advertising," by Carl Horne, vice-president, Alabama Gas Company.

"Relations with Customers and Employees," by Richard Fullerton, assistant treasurer, Florida Power & Light Co. Of special interest to the delegates was the booklet published by this company on "Telephone Contacts—Improvements and Analysis."

E. S. Pettyjohn, director of the Institute of Gas Technology, spoke on "Where We Stand with the Electric and the LP Gas Industries—the advantages of gas as a fuel vs. other fuels."

The subject of the "Commercial Load" was covered by Henry Birchall, of Miami Beach.


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**Leak Proof:—**

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Low in cost—profitable to use.

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**New York 7, N. Y.**


## Eberle and Webber Promoted by Public Service

Changes in the commercial department of Public Service Electric & Gas Company have been announced by President George H. Blake, as follows:

Edward R. Eberle, from managerial assistant to assistant to the general commercial manager, replacing Gordon M. Peterson who recently was made assistant general commercial manager.

George B. Webber, from assistant executive assistant, home office, to division commercial manager, central division, replacing Louis R. Quad, who was made assistant general commercial manager.

Mr. Eberle has served on various A. G. A. and E. E. I. committees. Mr. Webber has also been active in association work, having served as President of the New Jersey Gas Association in 1939. He is now a director of that organization.

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## Gas Compressor

**Horizontal water-cooled stationary Ingersoll-Rand Gas Compressor, class ES-1, size 11" x 20", V Belt drive, Speed—275 RPM, capacity—60,000 cubic feet per hour at 15 pounds pressure. Manual type reduced voltage starter, close range intake pressure governor. 75 HP Continental motor, 3 phase, 60 cycle, 220 or 440 volt, 1150 RPM, and motor base plus spare packing, two inlet and two discharge valves.**

**This new compressor was installed in January, 1947 and operated approximately six months when plant was converted from gas to fuel oil. The compressor and equipment have been maintained in first class condition and for all practical purposes are as good as new.**

**We purchased this equipment during 1946 at a cost of approximately $5,000, and offer it for sale at $4,250 f.o.b. cars our plant or $4,000 f.o.b. our plant buyer to arrange for removal from foundation.**

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**Water Gas Equipment**

Use Carbureted Water Gas Equipment, Sets, Compressors, Blowers, Pumps, Boilers, Tanks, etc.

Inquiries and bids, solicited, write:

**Central Pennsylvania Gas Company**
**Bellefonte, Penna.**

### "Superior" Introduces Valve

Maj. G. Powers, president of Superior Meter Co., announces the introduction of a new, extra-heavy bakelite valve with several advanced features. This valve is already being used in the company's 175 and 250 cu. ft. 5 lt. gas meters.

The valve, developed after considerable experimentation has been designed for maximum weight and rigidity. The final model was found to be best suited in overcoming the tendency or grit, dust and gum to "lift" the lighter bakelite covers tested. This "riding high" of valve covers was found to be an important cause of unaccounted for gas.

The extra weight and rigidity was built into the valve by increasing its height, adding five more ribs and using a one-piece cover wire to assure perfect alignment with the cover guides. A further refinement is the use of a built-in brass cover post with a raised shoulder which prevents bakelite "flash" from interfering with the smooth working of the cover arm. As a result of these features, the new valve weighs only one-half ounce less than Superior's 10 ft. bakelite valve which has been in service for over 10 years.

## Distribution Conference

*(Concluded from page 24)*

tainable to members from the A.G.A. headquarters in New York.

A composite film on construction equipment and distribution maintenance closed the General Sessions.

### Luncheon Conferences

Luncheon Conferences with informal discussions were held each day on the following subjects:

*Corrosion:—Sidney E. Trouard, Chairman*

*Construction and Maintenance:—F. J. Hall, Chairman*

*Meters and Metering:—R. J. Ott, Chairman*

*Distribution Design:—V. F. Bittner, Chairman*

*Motor Vehicles:—F. M. Rudman, and Lynn Edsall, Chairmen*

*Work on Consumers' Premises:—R. B. Borger, Chairman*

These conferences were held concurrently with large attendances and spirited discussions, all of which are "off the record."

Many delegates took occasion to inspect the demonstrations of ditching and excavating equipment provided at a suburban site.

---

### Further Analysis of Alberta To Coast Gas Pipe Line

Three alternative all-Canadian routes for a natural gas pipeline from Alberta and northwestern British Columbia to the coast have been carefully checked by the Pacific-Sunray group of companies and all three have been found feasible according to Frank McMahon, president of Pacific Petroleum Limited.

Mr. McMahon says there are important differences in costs of construction of the different routes but it is felt the benefit to Canadian communities should get first consideration. He suggests final decision will be governed by the location of the gas fields in the province from which the gas is to be drawn.

Depending on the final route or routes chosen and the number of cities to be served, the estimated cost of the pipeline system is between $50 and $100 million. Most of this, he says, will be provided in U.S.A. and most of it spent in Canada.

Behind the project represented by Mr. McMahon are Pacific Petroleums Limited, and Peace River Natural Gas Co., Ltd., its subsidiary which has drilled several wells on the B. C.-Alberta border and is actively continuing extensive development; Sunray Oil Corporation of Tulsa, Oklahoma and Los Angeles; Pacific Western Oil Corporation, Los Angeles; and Tide Water Associated Oil Co. of San Francisco. He points out that the three U.S. companies are large independent producers with capital and reserves aggregating several hundreds of millions of dollars.

Associated with the oil companies in the venture is the firm of Eastman, Dillon and Company, New York.

The present project is the result of investigation initiated by Mr. McMahon in 1937. The market for gas in the Vancouver area and in neighboring cities in Western Washington and Northern Oregon was studied and B. C. Electric Company made available an exhaustive report on these markets prepared by Ebasco Services Inc. of New York.

The investigations established that the market for natural gas was available in sufficient quantities to justify the large cost of a pipeline; that tentative routes and length of the line were practical; that further development and proving of gas fields would assure an adequate supply for these markets; but that considerable development would be required to determine that the requirements of Alberta would be adequately protected.

The group represented by Mr. McMahon retained S. E. Slipper, petroleum geologist, on a full time basis and since 1945 have acquired millions of acres under reservations from the Alberta government. Mr. McMahon says the group have $600,000 on deposit with the Province of Alberta in respect to these reservations. Development to date has run into several hundreds of thousands of dollars and a minimum of $3 million has been provided for active development over the next two years.

In Peace River area two large gas wells on the Alberta side and three productive wells in British Columbia have indicated an inter-provincial field of some magnitude. Recent success of a well at Halfway Lake marks the discovery of a sizeable gas reserve.

### Gas Production Grows Apace in British Columbia

With a view to providing unlimited supply of gas for both domestic and commercial customers in the Lower Mainland of British Columbia, the gas division of the B. C. Electric Company is now completing a $3,000,000 program.

Production capacity over the past three years has been increased from 10,000,000 to 15,300,000 cubic feet of gas per day. More than 57,000 gas customers now are served by the B. C. Electric in the Greater Vancouver and Lower Mainland area and by 1950 the company expects individual accounts to total 60,000.

Evidence of the growing popularity of cooking with gas is revealed by the fact that individual accounts with the company increased by more than 10,500 during the past 10 years.

Biggest single item in the expansion program was the erection of an ultra-modern carburetted water gas plant on Carrall street. Second unit of this plant was completed last December 1, 15 months after completion of the first unit on August 21, 1947.

Gas from the new plant has eased the load on three similar plants which have been providing consumers with the "modern fuel" for many years.

Finishing touches now are being put on a coal gas plant at the Carrall street works in Vancouver. When this plant starts operating next July, output will total 17,000,000 cubic feet of gas per day.

B. C. Electric plants employ two basic processes, coal gas and oil-enriched water gas.

The new water gas plant on Carrall street is operated by automatic control with only two men to a unit each shift.

Approximately 90 per cent of the coal used is bought from mines in the interior of British Columbia and Vancouver Island, following company policy to buy materials whenever possible in B. C.

A recent development in Victoria is the use of Propane, a by-product of the refining and natural gas industries of Alberta.

A Propane-Air Plant, capable of producing one-half million cubic feet per day, began operation in the capital last December. The Propane is mixed with air, then combined with the manufactured gas for use during peak periods of the year. It is planned to increase production of the Victoria plant this year by more than 1,000,000 cubic feet per day.

Meantime, the possibility of piping natural gas directly to Vancouver from Alberta is under consideration. A. E. "Dal" Grauer, B. C. Electric president, considers natural gas a matter of tremendous economic importance to the Lower Mainland area, and the B. C. Electric is doing everything possible to clear the way for fulfilment of this natural gas program.

### Surface Combustion Sales Managers of Divisions

Robin A. Bell has been advanced to General Sales Manager of both the Aircraft-Automotive and Domestic-Commercial Heating Divisions. He assumes his new responsibility with a broad background of experience in both divisions.

Harry C. Gurney, Western Sales Manager, Domestic-Commercial Heating Division, will advance to Sales Manager of this Division. He will move to the Toledo general office of the company.

William J. Grover, Marketing Director for all sales divisions of Surface Combustion, will devote an increased portion of his time to market research and retail sales planning activities for the Domestic-Commercial Heating Division.

Russell W. Glenn, of the Aircraft-Automotive Division, has been advanced to Sales Administration Manager of the new combined Janitrol Divisions.

James W. Ashby, of the Aircraft-Automotive Division, will become Sales Manager of this division. He will remain at the Columbus, Ohio, plant of the company.

Eugene A. Weaver, formerly on the staff of Surface Combustion Corp., has established his own business, as manufacturers agent on Janitrol Domestic-Commercial equipment, for the state of Michigan, according to C. B. Phillips, Vice President of the Company.